ORDER NO. VRD8807M155

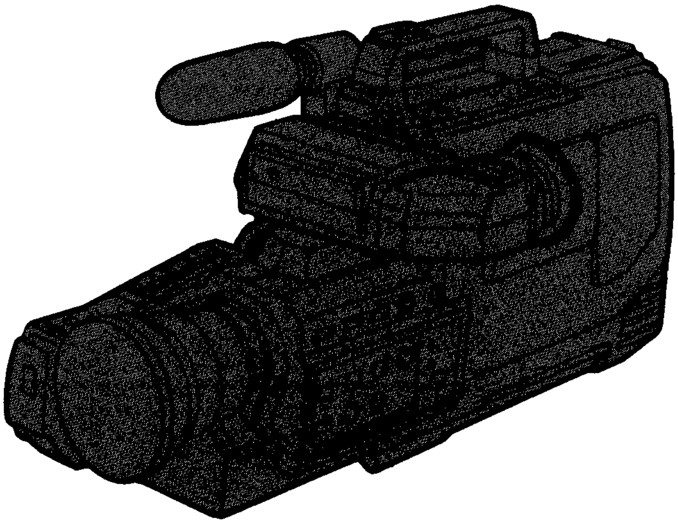
Service Manual

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List

Panasonic S VHS VHS PAL 625

S-VHS Movie

NV-MS1 B EG



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: BATTERY; DC 12V Consumption; Recording mode; 9W (Battery operation)
RECORDING SYSTEM	4 rotary heads, helical scanning system PAL
TAPE FORMAT	S-VHS, VHS Cassette Tape (Tape width 12.7mm)
TAPE SPEED	23.39mm/s Record/Playback Time 240 min. (with NV-E240) FF/REW Time less than 12 min. (with NV-E180)
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 7 lux
	LENS: Built-in 10: 1 Power Zoom Lens with MACRO Function, Auto Iris, Auto Focus System, F1.4 (8～80mm), Lens Front Diameter 55mm
	VIEW FINDER: 2/3″ B/W Electric View Finder
	WHITE BALANCE: Auto White Balance/Indoor/Outdoor

ITEM	SPECIFICATION
VIDEO	HEADS: 4 rotary heads 1 flying (rotary) erase head
	OUTPUT: Adaptor (Multi); 1.0Vp-p 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal Audio)
	INPUT: MIC IN; −70dBV, 4.7kΩ unbalanced
	OUTPUT: Adaptor (Multi); −8dBV, 600Ω unbalanced
WEIGHT	Approx. 2.7kg (without Battery Pack)
DIMENSIONS	127mm (W) × 223mm (H) × 16-7/16″ (417mm) (D) with view finder turned down
STANDARD ACCESSORIES	1 pc. Battery Pack 1 pc. Battery Pack Charging Connector 1 pc. DIN-DIN Coaxial Cable 1 pc. AC Adaptor 1 pc. Shoulder Strap 1 pc. Batteries for Clock 1 pc. AV Converter Connector 1 pc. S-Video Cord 1 pc. 300Ω-75Ω Transformer 1 pc. Lens Cleaning Cloth 1 pc. Earphone 1 pc. System Carrying Case (NV-MS1B only)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

INTRODUCTION

This service manual contains technical information witch will allow service personnels to understand and service this model.
Section 1 presents you with some general information of features and controls, enabling you to become familiar with each function.
Section 2 contributes to your mechanical and electrical adjustment as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to each service manual.
Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams wich give you detailed information such as waveforms, voltage data, function e.t.c...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

CONTENTS

SECTION 1 GENERAL DESCRIPTION

1. HOW TO USE S-VHS MOVIE 1-1
  - 1-1. FEATURES 1-1
  - 1-2. CONTROLS AND COMPONENTS 1-1
  - 1-3. ELECTRICAL VIEWFINDER 1-3
  - 1-4. S-VHS MOVIE SYSTEM ACCESSORIES 1-3
  - 1-5. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS 1-4
  - 1-6. TECHNICAL DESCRIPTION 1-5

SECTION 2 ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES 2-1
  - 2-1-1. DISASSEMBLY FLOW CHART 2-1
  - 2-1-2. DETAILED DISASSEMBLY METHOD 2-1

2-2. REPLACEMENT PROCEDURES 2-6
  - 2-2-1. REPLACEMENT OF CCD UNIT 2-6
  - 2-2-2. REPLACEMENT OF ZOOM MOTOR UNIT 2-6
  - 2-2-3. REPLACEMENT OF FOCUS MOTOR UNIT 2-6
  - 2-2-4. REPLACEMENT OF DD CYLINDER UNIT 2-6
  - 2-2-5. REPLACEMENT OF UPPER CYLINDER UNIT 2-7
  - 2-2-6. REPLACEMENT OF CAPSTAN STATOR UNIT 2-8
  - 2-2-7. REPLACEMENT OF TENSION BAND 2-9

2-3. MECHANICAL ADJUSTMENT PROCEDURES 2-10
  1. SERVICING FIXTURES & TOOLS 2-10
  2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT 2-11
  3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES 2-11
  4. OTHER ADJUSTMENT PROCEDURES 2-16

2-4. ELECTRICAL ADJUSTMENT PROCEDURES 2-20
  2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION 2-20
  2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION 2-32
  LOCATION OF TEST POINTS & CONTROLS (1) 2-34
  LOCATION OF TEST POINTS & CONTROLS (2) 2-36
  2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION 2-37

SECTION 3 BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. CAMERA STAGE BLOCK DIAGRAM 3-1
3-2. POWER SUPPLY BLOCK DIAGRAM 3-6
3-3. SYSTEM CONTROL BLOCK DIAGRAM 3-7
3-4. SERVO BLOCK DIAGRAM 3-11
3-5. LUMINANCE & CHROMINANCE BLOCK DIAGRAM 3-15
3-6. E.V.F. SCHEMATIC DIAGRAM 3-19
3-7. E.V.F. (1) C.B.A. & E.V.F. (2) C.B.A. 3-21
3-8. SENSOR SCHEMATIC DIAGRAM 3-23
3-9. SENSOR C.B.A. 3-25
3-10. AUTO FOCUS SCHEMATIC DIAGRAM 3-27
3-11. AUTO FOCUS C.B.A. 3-29
3-12. PROCESS & ENCODER PACK SCHEMATIC DIAGRAM 3-32
3-13. PROCESS C.B.A. & ENCODER PACK C.B.A. 3-37
3-14. MAIN [POWER SUPPLY, SYSTEM CONTROL, SERVO, LUMINANCE & CHROMINANCE, HEAD AMP, AUDIO, ROTARY ERASE] C.B.A. OPERATION C.B.A. & SUB EMPHASIS C.B.A. 3-42
3-15. POWER SUPPLY SCHEMATIC DIAGRAM 3-48
3-16. AUDIO SCHEMATIC DIAGRAM 3-50
3-17. SYSTEM CONTROL & OPERATION SCHEMATIC DIAGRAM 3-52
3-18. LUMINANCE,CHROMINANCE & HEAD AMP SCHEMATIC DIAGRAM 3-59
3-19. SERVO SCHEMATIC DIAGRAM 3-64
3-20. SUB VIDEO SCHEMATIC DIAGRAM 3-67
3-21. SUB VIDEO C.B.A. 3-69
3-22. CAMERA OPERATION SCHEMATIC DIAGRAM 3-70
3-23. CAMERA OPERATION C.B.A. 3-72
3-24. CIRCUIT BOARD LAYOUT 3-73
3-25. ICs & TRs INFORMATION 3-74
3-26. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM 3-77
3-27. VTR INTERCONNECTION SCHEMATIC DIAGRAM 3-79

SECTION 4 EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW

1. CAMERA LENS SECTION 4-1
2. VTR MECHANISM SECTION (1) 4-2
3. VTR MECHANISM SECTION (2) 4-3
4. CHASSIS & FRAME SECTION 4-4
5. E.V.F. SECTION 4-5
6. PACKING PARTS & ACCESSORIES SECTION (NV-MS1EG) 4-6
7. PACKING PARTS & ACCESSORIES SECTION (NV-MS1B) 4-7
8. SYSTEM CARRYING CASE (VW-SHS1) 4-8

MECHANICAL REPLACEMENT PARTS LIST

ELECTRICAL REPLACEMENT PARTS LIST

SECTION 1
GENERAL DESCRIPTION

1. HOW TO USE S-VHS MOVIE

1-1. FEATURES

Piezo Auto Focus

The focus is always automatically and precisely adjusted under all shooting situations.There is no need to manually adjust the focus ; manual focus adjustment is aiso possible.

Cue & Review Playback

Convenient for fast−forwarding or rewinding the tape while watching the picture.

Compact, Lightweight and Super-Portable

With a weight of only about 2.7 kg, the S-VHS Movie is handy to use and carry along.

3-Way Power Supply

The S−VHS Movie can be operated on 3 different power sources: rechargeable battery pack, AC adaptor or car battery cord.

Auto White Balance

The white balance is fully automatically adjusted and continuously readjusted to any changes in illumination during shooting. Manual adjustment is also possible.

Alarm Indications

Various warning indications prevent operating mistakes and always assure successful results.

10X Power Zoom Lens

Powerful, smooth zooming between Wide−angle and telephoto is simple with convenient push−button control.

High Speed Shutter Function

This function makes it possible to catch even super−fast action with sharp countours and amazing detail.

Audio Dubbing Function

The Audio Dubbing function allows replacing the originally recorded sound with narration, back−ground music or special sound effects.

Insert Editing

Insert Editing (or Insert Recording) is handy for editing tapes by inserting new scenes into an already recorded video tape.

Recording of TV Programmes is Possible via a Line Adaptor (Supplied)

By connecting a TV set with separate Video/Audio Output Sockets via the Line Adaptor (supplied), recording TV programmes is possible.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

Equipped with Flying (Rotary) Erase Head

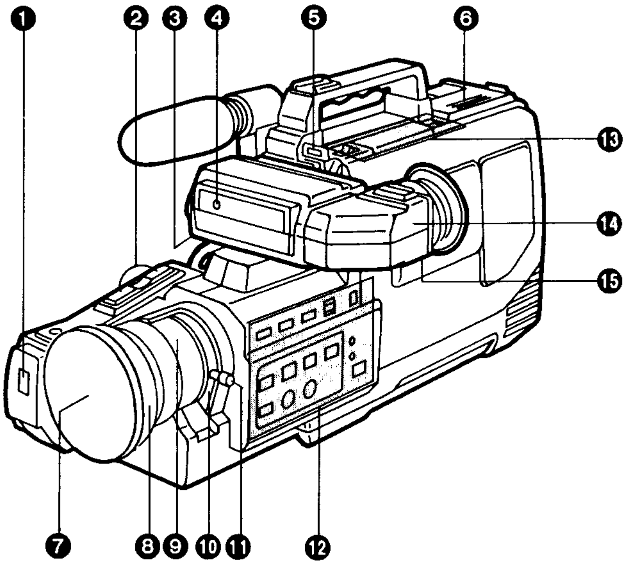
The distracting moise ordinarily generated between sucessive recordings has been virfually eliminated by the Flying Erase Head which is directly mounted on the nead cylinder. Able to precisely trace the recording tracks as it erases, it assures consistently smooth, noise−free scene transitions. Insert editing onto previously recorded tapes also gains professional−level quality.

S-VHS System

The S−VHS System has been designed to offer the advantages of an image with a horizontal resolution in excess of 400 limes. Adrances in tape and signal quality have made this higher image detail possible.

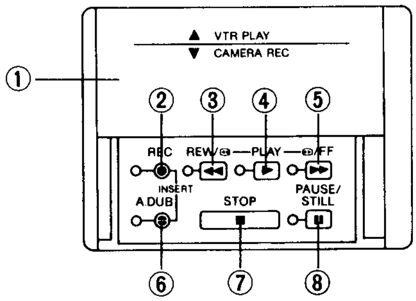
1-2. CONTROLS AND COMPONENTS

RIGHT VIEW



❶ White Balance Sensor Window
❷ Power Zoom Control Buttons
❸ Tally Indicator On/Off Switch
❹ Tally Indicator
❺ Metal Fitting for Shoulder Strap

❻ Tape Running Buttons

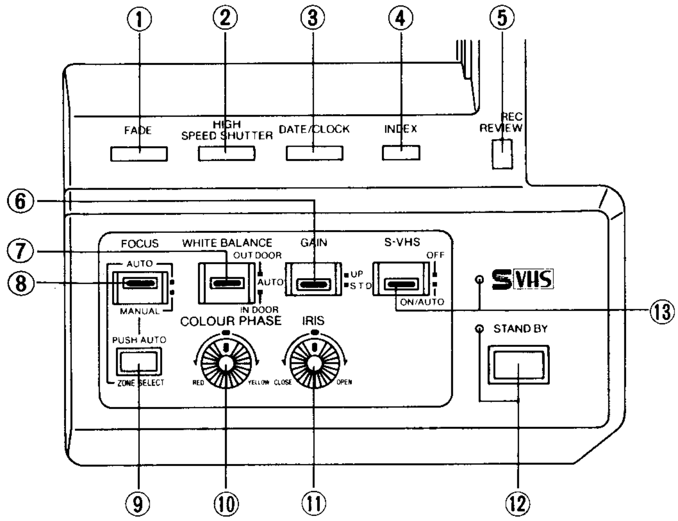

①
▲ VTR PLAY
▼ CAMERA REC
②
③
④
⑤
REC
REW/⊡—PLAY—⊡/FF
INSERT
A DUB
STOP
PAUSE/
STILL
⑥
⑦
⑧

① **Function of the Camera/VTR Selector Cover**

Closed	For camera recording.
Open (as illustrated)	For other operations than camera recording.

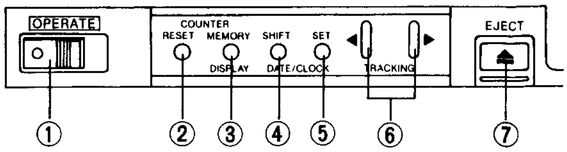
② Record Button
③ Rewind/Review Button
④ Play Button
⑤ Fast Forward/Cue Button
⑥ Audio Dubbing Button
⑦ Stop Button
⑧ Pause/Still Button

❼ Lens Cap
❽ Lens Hood
❾ Focus Ring
❿ Zoom Ring
⓫ Manual Zoom Lever
⓬ Main Operation Controls


①
②
③
④
⑤
FADE
HIGH
SPEED SHUTTER
DATE/CLOCK
INDEX
REC
REVIEW
⑥
⑦
⑧
FOCUS
AUTO
MANUAL
PUSH AUTO
ZONE SELECT
WHITE BALANCE
OUT DOOR
AUTO
IN DOOR
GAIN
UP
STD
S-VHS
OFF
ON/AUTO
COLOUR PHASE
RED
YELLOW
IRIS
CLOSE
OPEN
S-VHS
STAND BY
⑬
⑨
⑩
⑪
⑫

① Fade Button
② High Speed Shutter Selector
③ Date/Clock Selector
④ Index Signal Recording Button
⑤ Rec Review Button
⑥ CCD Pick-up Element Gain Switch
⑦ White Balance Mode Selector
⑧ Focus Mode Selector
⑨ Focus Adjusting Button/Zone Selector
⑩ Colour Phase
⑪ Iris Close/Open Control
⑫ Standby Button with Indicator
⑬ S-VHS System Selector with Indicator

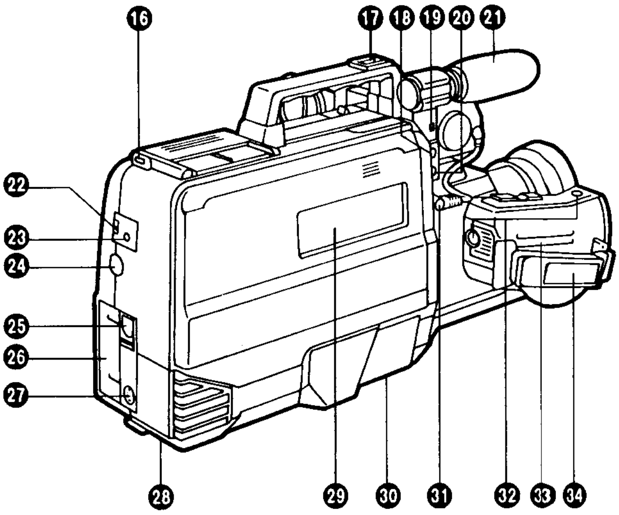
⓭ General Operation Controls


OPERATE
COUNTER
RESET
MEMORY
DISPLAY
SHIFT
DATE/CLOCK
SET
TRACKING
EJECT
①
②
③
④
⑤
⑥
⑦

① Operation On/Off Switch
② Reset Button
③ Memory Button
④ Date Shift Button
⑤ Date Set Button
⑥ Tracking Adjust Buttons
⑦ Eject Button

⓮ Electronic Viewfinder
⓯ Eyepiece Corrector Control

LEFT VIEW


⓰
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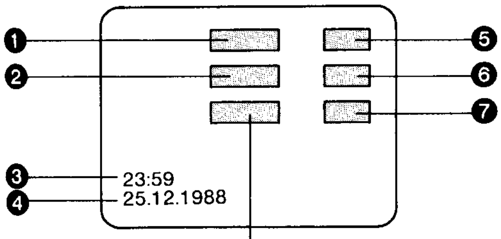
⓰ Metal Fitting for Shoulder Strap
⓱ Accessory Shoe
⓲ External Microphone Socket
⓳ Microphone Sensitivity Selector
⓴ Earphone Socket
㉑ Built-in Microphone
㉒ Edit Switch
㉓ Remote Control Socket
㉔ Adaptor Socket
㉕ Battery Eject Button
㉖ Battery Compartment
㉗ S-Video Output Connector
㉘ Battery Compartment for Auto Date/Clock
㉙ Cassette Compartment
㉚ Tripod Receptacle
㉛ EVF/Character Generator Terminal
㉜ Start/Stop Button
㉝ Handgrip
㉞ Grip Belt

1-3. ELECTRICAL VIEWFINDER

The following indications are displayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the S-VHS Movie.



Warning/Alarm Indications

BATT	There is little battery power left. The S-VHS Movie will be turned off in a few minutes. Replace the battery pack with a fully recharged one.
TAPE	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	During recording, the tape has reached its end. Replace the tape with a new one.
DEW	When condensation has formed inside the S-VHS Movie, the "DEW" indicator will flash and a few seconds later, the unit will turn itself off.

❶ Remaining Battery Power/Index Indication

E---F	The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.
INDEX	This indicator flashes when a recording is started or when the Index Signal Recording Button is pressed and it indicates that an index signal is being recorded.

❷ Counter Indication

M0123	Tape Counter
1:23.45	Lap Time Counter

❸ Clock Indications

❹ Date Indications

❺ Recording/Insert Indication

REC	Recording
---	Recording Pause
INST	Insert
---	Insert Pause

❻ S-VHS System Indication

S-VHS	S-VHS System
"　"	VHS System

❼ High Speed Shutter Mode Indication

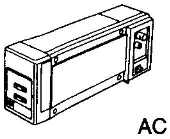
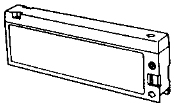
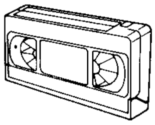
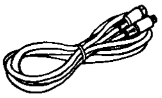
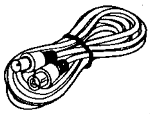
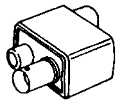
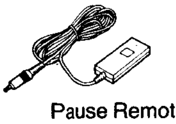
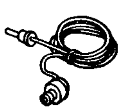
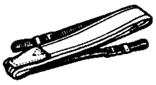
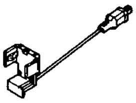
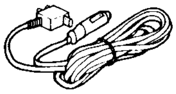
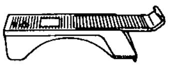
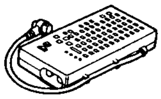
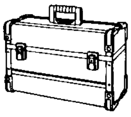
1/250	1/250 sec.
1/500	1/500 sec.
1/1000	1/1000 sec.

Manual White Balance indication

OUT	OUTDOOR
IN	INDOOR

- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

1-4. S-VHS MOVIE SYSTEM ACCESSORIES

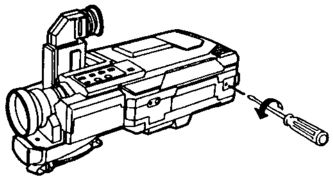
 AC Adaptor (supplied)	 Battery Pack (supplied)	 VHS Video Cassette (supplied)	 Battery for Clock Operation (supplied)
 S-Video Cord (supplied)	 DIN-DIN Coaxial Cable (supplied)	 Cloth for Cleaning the Lens (supplied)	 AV Converter Connector (supplied)
 Pause Remote Control Unit (VW-RM1) (optional)	 Earphone (supplied)	 Shoulder Strap (supplied)	 Battery Pack Charging Connector (supplied)
 Car Battery Cord (VW-ACM1) (optional)	 Shoulder Pad (VW-SP7) (optional)	 Character Generator (VW-CG1) (optional)	 System Carrying Case (VW-SHS1) (supplied : NV-MS1B optional: NV-MS1EG)

CAUTION: **TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

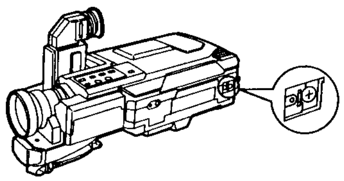
1-5. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS

How to Insert the Battery for the Clock Operation

❶ Remove the lid on the bottom of the S-VHS Movie with a (+) screwdriver.



❷ Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.



The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the S-VHS Movie is turned off.

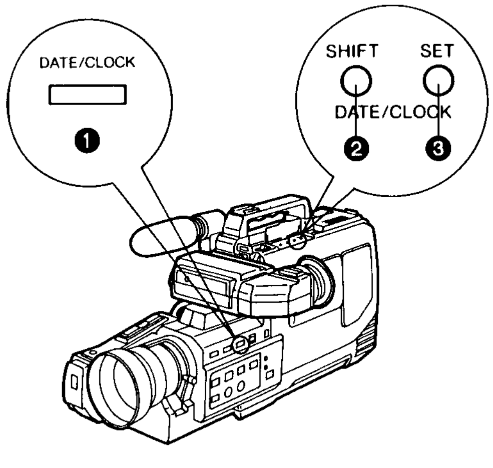
Cautions

- When this battery is almost exhausted, the whole time and date indication will flash.
- When this battery is completely exhausted, the indication "PLEASE SET BATTERY" will appear.
- To make this indication disappear, press the Date/Clock Selector twice.
- If this indication is still displayed after the battery has been replaced, turn the S-VHS Movie off and then on again.

CAUTION FOR BATTERY REPLACEMENT

- The life of the battery is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the battery once a year.
- Load the new battery with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to battery, or internal short-circuit may occur.
- Remove spent battery immediately and dispose of it.

Setting of the Date and Clock



❶ When the Date/Clock Selector is pushed, the indication shown on the right will appear in the EVF.

0:12
1. 1.1987

- If no battery is inserted, the indication "PLEASE SET BATTERY" will light up. In this case, insert the battery.

❷ When the Shift Button is pushed, the flashing portion will be changed in the following sequence.

Year ⟶ Month ⟶ Date ⟶ Hour ⟶ Minute ⟶ (back to Year)

❸ When the Set Button is pushed, the flashing portion displayed will be changed in the following sequence.

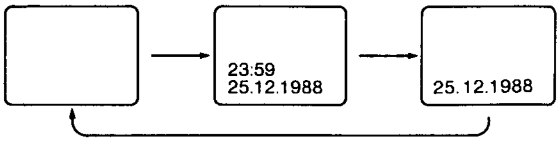
YEAR: 1987 → 1988 → ················· → 2086
MONTH: 1 → 2 → ··················· → 12
DATE: 1 → 2 → ······ → 28 → (29) → (30) → (31)
HOUR: 0 → 1 → ··················· → 23
MINUTE: 00 → 01 → ·················· → 59

- Repeat procedures ❷ and ❸ until all five items have been set.
- Once the time and date are set, press the Shift Button in response to a precise time signal so that the clock may begin to function.

Recording the Date/Clock Indications

When the Date/Clock Selector is pushed repeatedly, the indication will change in the following sequence.

To record neither the Date nor the Clock Indication: **To record the Date and Clock Indications:** **To record only the Date Indication:**



1-6. TECHNICAL DESCRIPTION (WHAT ARE THE DIFFERENCE ?)

1. GENERAL DESCRIPTION

In addition to the technical merits of the conventional VHS movie (NV−M7), this model (NV−MS1) has equipped with Super VHS (S−VHS) function to satisfy the demand of high picture quality.
The conventional VHS format offers about 230 lines of horizontal resolution, however, S−VHS technology increases this specification to well over 400 lines by raising the FM carrier frequency of the luminance signal from between 3.8MHz and 4.8MHz to between 5.4MHz and 7.0MHz.
The result in performance is breathtaking detail and clarity. A 200% increase in peak white level enhances the picture quality even more, with excellent delineation of image borders, and highly faithful reproduction of detail.
When resolution increases, normally noise does too, S−VHS technology solve this problem by broadening the luminance signal bandwidth (frequency deviation) from 1MHz to 1.6MHz, thus improving the S/N ratio.
The non−linear sub−emphasis system further reduces noise by varying the emphasis according to the amplitude of the incoming signal, making it possible to apply the optimum amount of emphasis to signals of finely divided levels.
In order to fulfill the above new functions, some circuits have been developed and improved versions of their conventional equivalents.
This section is assigned to describe in details some of these new developments in order to familiarize service technicians with the technical differences of VHS Movie Model NV−MS1.
The main Circuits of NV−MS1 are identical with those of NV−M7. (Refer to Training Manual of NV−M7).

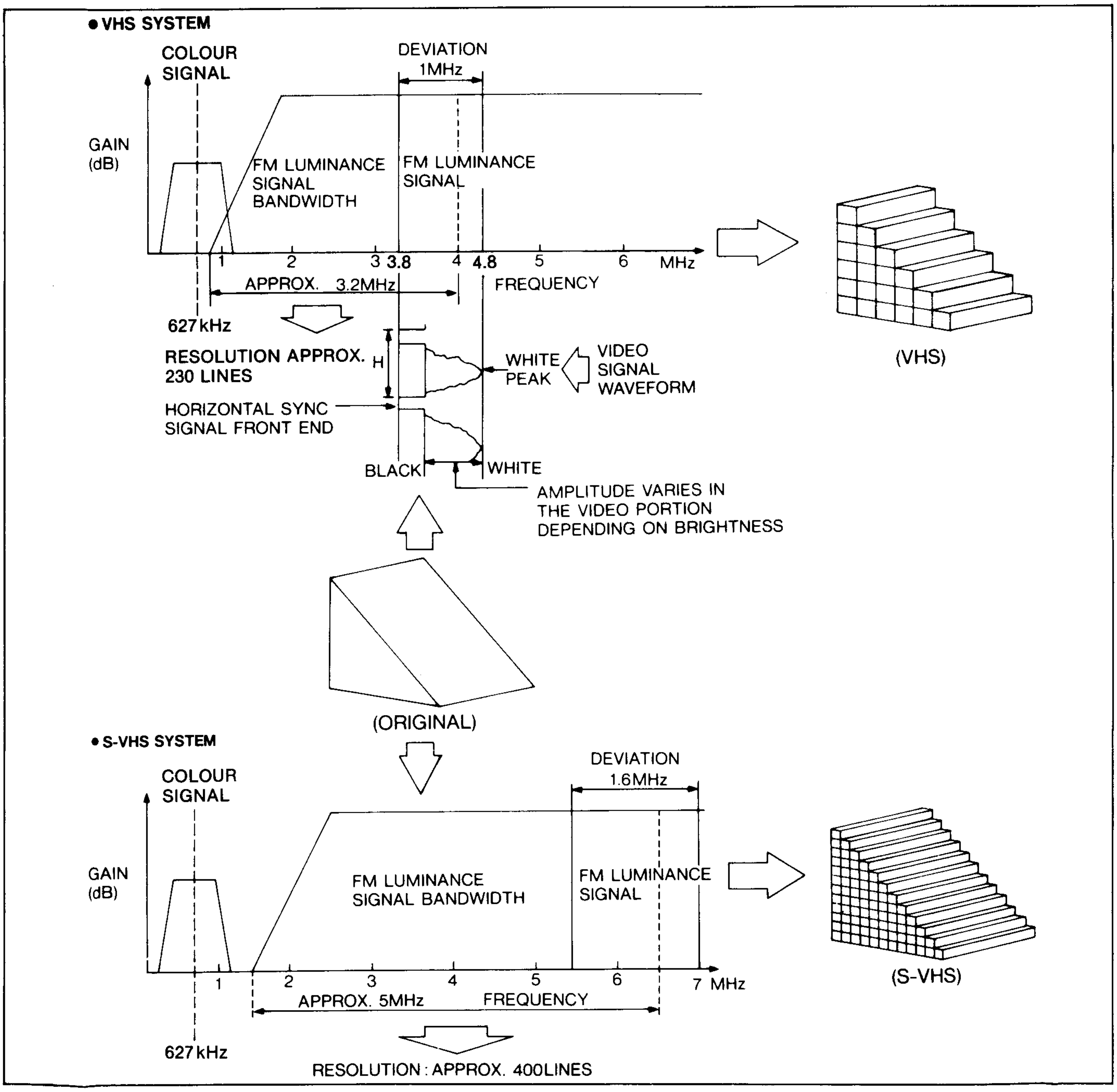
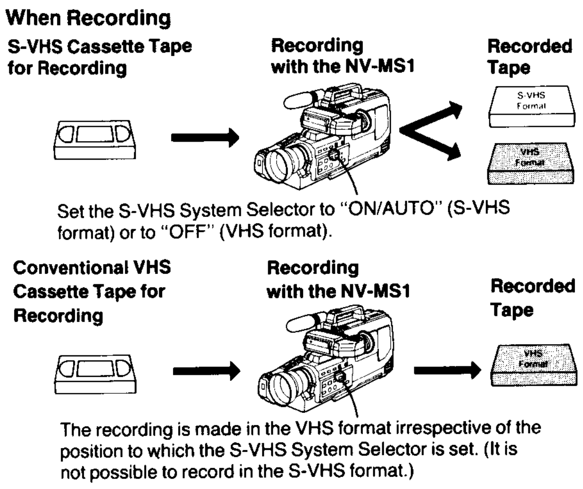

● VHS SYSTEM
COLOUR SIGNAL
DEVIATION 1MHz
GAIN (dB)
FM LUMINANCE SIGNAL BANDWIDTH
FM LUMINANCE SIGNAL
1
2
3
3.8
4
4.8
5
6
MHz
APPROX. 3.2MHz
FREQUENCY
627kHz
RESOLUTION APPROX. 230 LINES
H
WHITE PEAK
VIDEO SIGNAL WAVEFORM
HORIZONTAL SYNC SIGNAL FRONT END
BLACK
WHITE
AMPLITUDE VARIES IN THE VIDEO PORTION DEPENDING ON BRIGHTNESS
(VHS)
(ORIGINAL)
● S-VHS SYSTEM
COLOUR SIGNAL
DEVIATION 1.6MHz
GAIN (dB)
FM LUMINANCE SIGNAL BANDWIDTH
FM LUMINANCE SIGNAL
1
2
3
4
5
6
7 MHz
APPROX. 5MHz
FREQUENCY
627kHz
RESOLUTION: APPROX. 400LINES
(S-VHS)

Fig. 1

[Compatibility of VTRs and Tapes]

In order to record higher frequency (fine detail picture), the new S-VHS cassette tape has been developed which utilizes cobalt-coated ferric oxide tapes similar to those used in conventional VHS cassettes.
The S-VHS Movie is allowed high picture quality recording and play back using this new video cassette carrying the SVHS mark as well as Conventional VHS recording and play back on the video cassettes bearing the VHS mark.

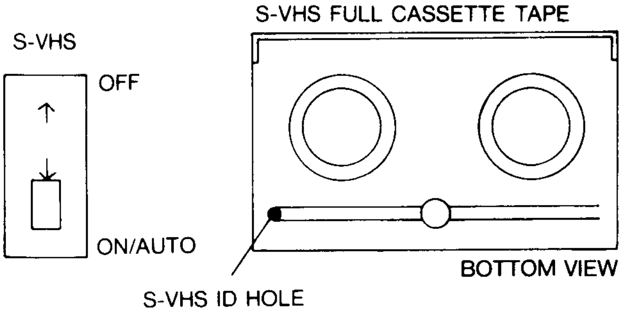
S-VHS Cassette shells are of standard VHS design, with a single hole added for identification.
S-VHS tape incorporates finer magneticles and a high density charge for increased (900-De) coercivity and greater high output.
This combination satisfies the technical requirements for S-VHS recording while maintaining VHS compatibility.
A super-smooth surface for the magnetic layer boosts travel stability to reduce litter and enhance durability.

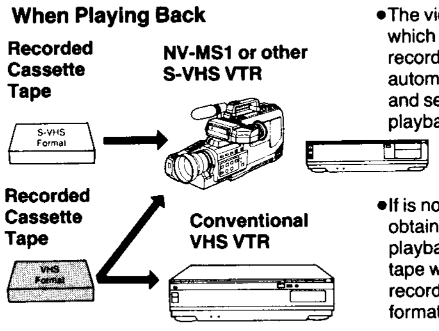

When Recording
S-VHS Cassette Tape for Recording
Recording with the NV-MS1
Recorded Tape
S-VHS Format
VHS Format
Conventional VHS Cassette Tape for Recording
Recording with the NV-MS1
Recorded Tape
VHS Format

Set the S-VHS System Selector to "ON/AUTO" (S-VHS format) or to "OFF" (VHS format).

The recording is made in the VHS format irrespective of the position to which the S-VHS System Selector is set. (It is not possible to record in the S-VHS format.)

Recording Select Switch
The Recording Select Switch is used to select the recording mode either S-VHS or VHS.


S-VHS FULL CASSETTE TAPE
S-VHS
OFF
ON/AUTO
BOTTOM VIEW
S-VHS ID HOLE


When Playing Back
Recorded Cassette Tape
NV-MS1 or other S-VHS VTR
S-VHS Format
Recorded Cassette Tape
Conventional VHS VTR
VHS Format

- The video format in which the tape was recorded will be automatically detected and selected for playback.
- If is not possible to obtain a normal, clean playback picture from a tape which was recorded in the S-VHS format.

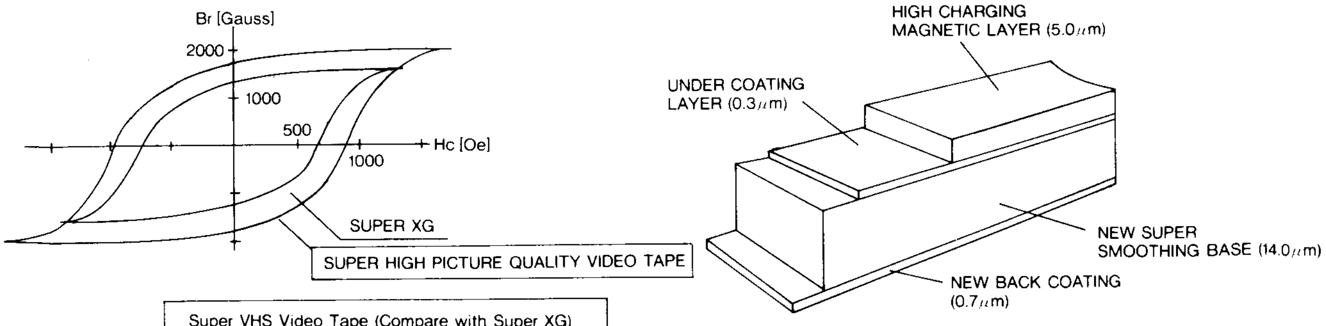
REC SELECT SW TAPE	REC MODE	
	ON/AUTO	OFF
S-VHS TAPE	S-VHS MODE	VHS MODE
VHS TAPE	VHS MODE	VHS MODE

VCR TAPE	P.B MODE	
	S-VHS VCR	VHS VCR
S-VHS TAPE RECORDED IN S-VHS MODE	S-VHS MODE	NOT POSSIBLE
S-VHS TAPE RECORDED IN VHS MODE	VHS MODE	VHS MODE
VHS TAPE RECORDED IN VHS MODE	VHS MODE	VHS MODE

Fig. 2 Compatibility of VTRs and Tapes

Magnetic Characteristic of Super VHS Video Tape

Construction of Super High Picture Quality Video Tape


Br [Gauss]
2000
1000
500
Hc [Oe]
1000
SUPER XG
SUPER HIGH PICTURE QUALITY VIDEO TAPE
HIGH CHARGING MAGNETIC LAYER (5.0μm)
UNDER COATING LAYER (0.3μm)
NEW SUPER SMOOTHING BASE (14.0μm)
NEW BACK COATING (0.7μm)

Super VHS Video Tape (Compare with Super XG)
Hc : 35% UP (1.35 times) X Br : 35% UP (1.35 times)
Magnetic Energy : 80% UP (1.8 times)

Hc	Coercivity
Br	Residual Magnetic Flux Density

∗ New developed BERIDOX-SHR (Super High Resolution) is used in magnetic particle.
∗ To reduce modulation noise and drop-out....
1) Ultra Corpuscle of magnetic particle.
2) Equalization of magnetic particle.
3) Special Back Coating on Base. (to keep high transition)

Fig. 3 Characteristics of New S-VHS tape

2. System Control Circuit

In addition to Conventional (NV–M7) system control circuit, switching circuit is equipped with NV–MS1 to select the S–VHS or VHS.
The system control circuit have to send the result of switching whether S–VHS is selected or not to Video circuit.
The simplified Block diagram is shown in Fig. 4.

[REC Mode]

As previously described, S–VHS cassette has identification hole to let VTR recognize S–VHS cassette is used or not.
In order to detect the identification hole on cassette, one additional switch (SW1) is located on mechanical chassis.
When S–VHS cassette is used and S–VHS/VHS SW is set to S–VHS side, system control circuit send the S–VHS low signal to video circuit, which is allowed to use S–VHS circuit.

(a) When S–VHS cassette is used, SW1 (S–VHS HOLE DET SW) is opened and high voltage (+5V) is applied to QR6030. Then it is inverted to low signal.
(b) When S–VHS/VHS selector is set for S–VHS, high voltage is supplied to base of QR6001 and it turns on eventually QR6006 is turned on because of low level at base of QR6006.
(c) Scan pulse from IC6001–51 passes through QR6006 and is fed back to IC6001–16. IC6001 recognize that S–VHS recording is selected.
(d) IC6001 sends the S–VHS information from IC6001–36 to IC6005–2 by using serial data transmission.
(e) Finally S–VHS high signal is sent from IC6005–12 to QR6031 and is inverted to low signal which is sent to video circuit as switching signal. At the same time, S–VHS LED is illuminated.

[P.B mode]

During Play Back mode, S–VHS detection circuit in Video Circuit detect the recorded FM carrier frequency and judge the S–VHS signal or VHS signal is being played back.
When S–VHS signal is played back, PB S–VHS high signal is sent from video circuit to QR6005 and it turns on because emitter of QR6005 is low.
Finally, S–VHS low signal is generated to illuminate S–VHS LED and is sent to video circuit.
During playback mode, IC6001 and IC6005 does not work for detection of S–VHS/VHS.

3. Video Circuit

Chrominance circuit of NV–MS1 is same as NV–M7 except Pilot burst circuit which is explained later. In the luminance circuit, S–VHS circuit is adopted for NV–MS1.
The block diagram in section 3 shows the current flow of video circuit, refer to block diagram.

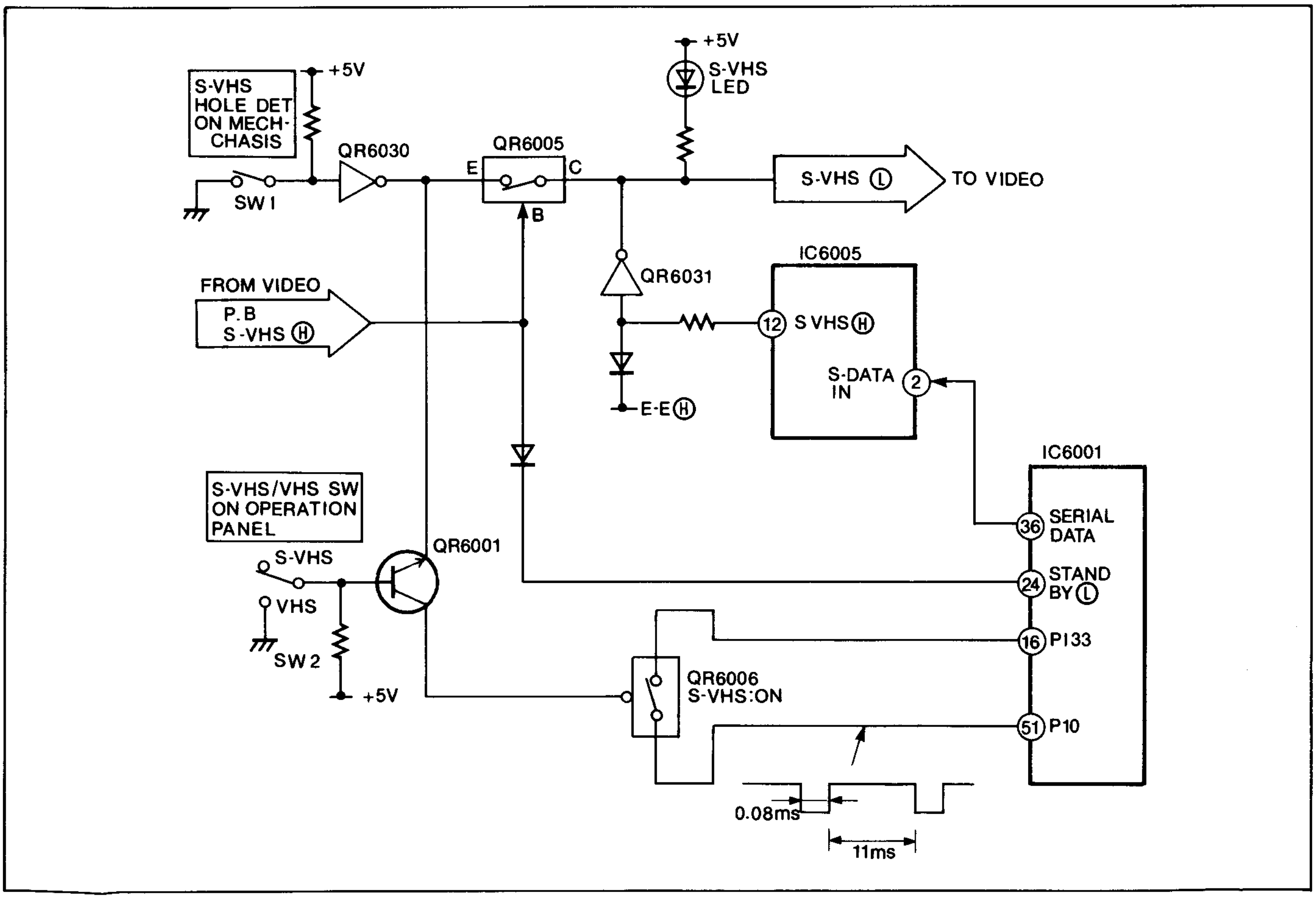

+5V
S-VHS HOLE DET ON MECH-CHASIS
SW 1
QR6030
QR6005
E
C
B
+5V
S-VHS LED
S-VHS Ⓛ
TO VIDEO
IC6005
QR6031
FROM VIDEO
P.B S-VHS Ⓗ
⑫ S VHSⒽ
S-DATA IN ②
E-EⒽ
IC6001
S-VHS/VHS SW ON OPERATION PANEL
S-VHS
VHS
SW 2
+5V
QR6001
㊱ SERIAL DATA
㉔ STAND BYⓁ
⑯ P133
QR6006 S-VHS:ON
(51) P10
0.08ms
11ms

Fig. 4 Simplified Block Diagram

[Luminance Recording Process]

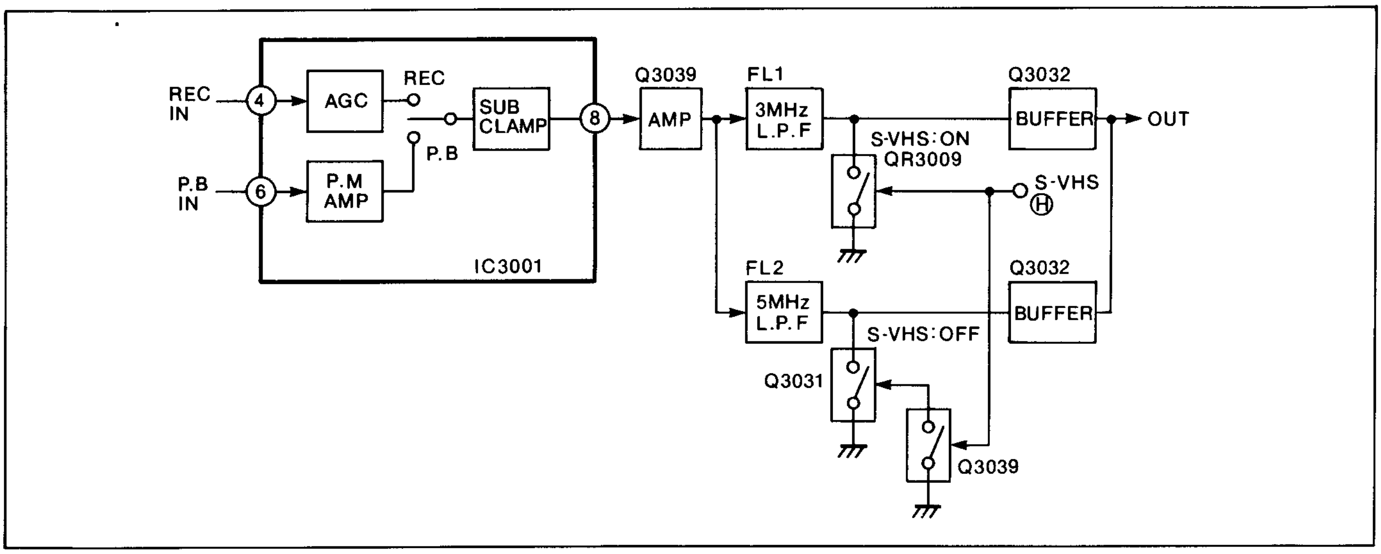
As shown in block diagram, in order to achieve both of S–VHS and VHS functions in one circuit, there are a number of transistor switches to switch between S–VHS and VHS modes. The difference between two circuits is described next.

(1) Low Pass Filter

In order to eliminate the higher frequency noise than its recording capability, two kind of Low Pass Filters are used.
The S–VHS system is able to record a greater video bandwidth than standard VHS, for this reason a 5MHz L.P.F is used.
These are selected by S–VHS high signal as shown in Fig. 5.

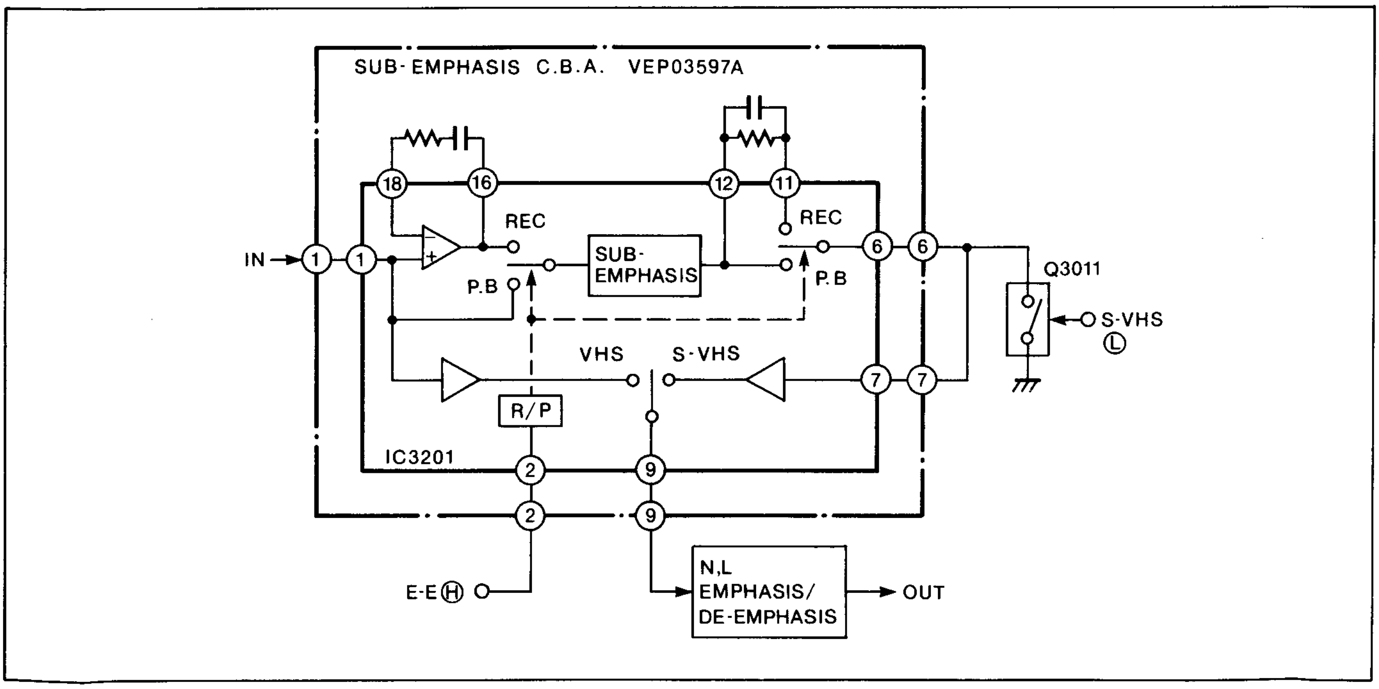
(2) Sub–Emphasis

The basic concept of Sub–Emphasis circuit is the same as the Non–Linear Emphasis Circuit in the current model.
However, the high frequency characteristics is changed so as to be suitable for S–VHS recording and playback modes.
The Sub–Emphasis circuit makes it possible to improve the S/N ratio keeping the resolution more than 400 lines.
S–VHS/VHS switching circuit which Consists of some transistors SW selects the Sub–Emphasis circuit when S–VHS function is used. After this signal is supplied to Non–Linear Emphasis again.



REC IN
P.B IN
4
6
AGC
P.M AMP
REC
P.B
SUB CLAMP
8
IC3001
Q3039
AMP
FL1
3MHz L.P.F
FL2
5MHz L.P.F
S-VHS:ON
QR3009
S-VHS:OFF
Q3031
Q3039
Q3032
BUFFER
Q3032
BUFFER
OUT
S-VHS Ⓗ

Fig. 5



SUB-EMPHASIS C.B.A. VEP03597A
IN
1
1
18
16
12
11
REC
REC
P.B
P.B
SUB-EMPHASIS
6
6
7
7
VHS
S-VHS
R/P
IC3201
2
9
2
9
Q3011
S-VHS Ⓛ
E-E Ⓗ
N,L EMPHASIS/ DE-EMPHASIS
OUT

Fig. 6 Sub–Emphasis Circuit

Eventually, the frequency characteristics of S–VHS and VHS become difference as shown in Fig. 7.

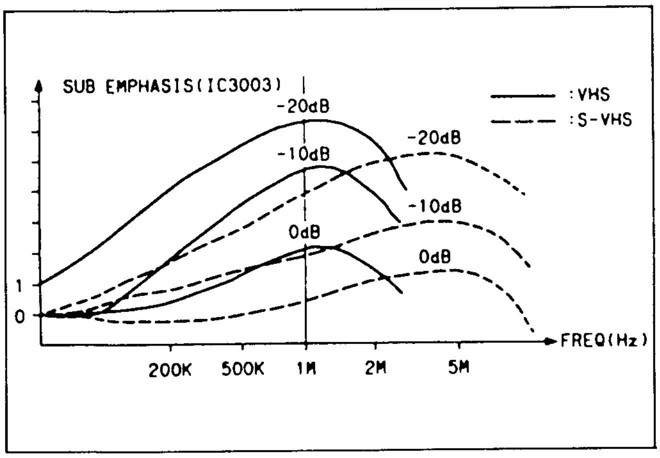


Fig. 7 Characteristics of Sub–Emphasis

During Play back mode, the frequency characteristics is just changed opposite from REC mode in order to restore the signal.

(3) Frequency Modulation (FM)

As previously explained, in the S–VHS system, the luminance signal frequency band is both shifted upward and widened, and recording wave length is shortened.
The frequency deviation for S–VHS has been widened to 1.6MHz (Compared to 1MHz for VHS) and signal clip level has been increased (White clip 200% compared to 190% for VHS). The frequency deviation is decided by VR3005 and VR3008, the sync tip frequency (5.4MHz) is set by VR3004 and VR3009. White and dark clip levels are set by VR3002 and VR3003.
The switching of S–VHS and VHS for each above levels are changed by transistor's switches which are switched by S–VHS low signal.
Thus, there is a distinct improvement in S/N ratio and of the luminance signal contrast.

[Luminance Play back Process]

As shown in block diagrams of Section 3, Luminance Playback Process is also similar to Conventional luminance circuit.
In order to satisfy the S–VHS bandwidth, however, the characteristics of Sub–De Emphasis circuit are opposite from Sub–Emphasis used in recording mode and so restore the luminance signal to that of original.

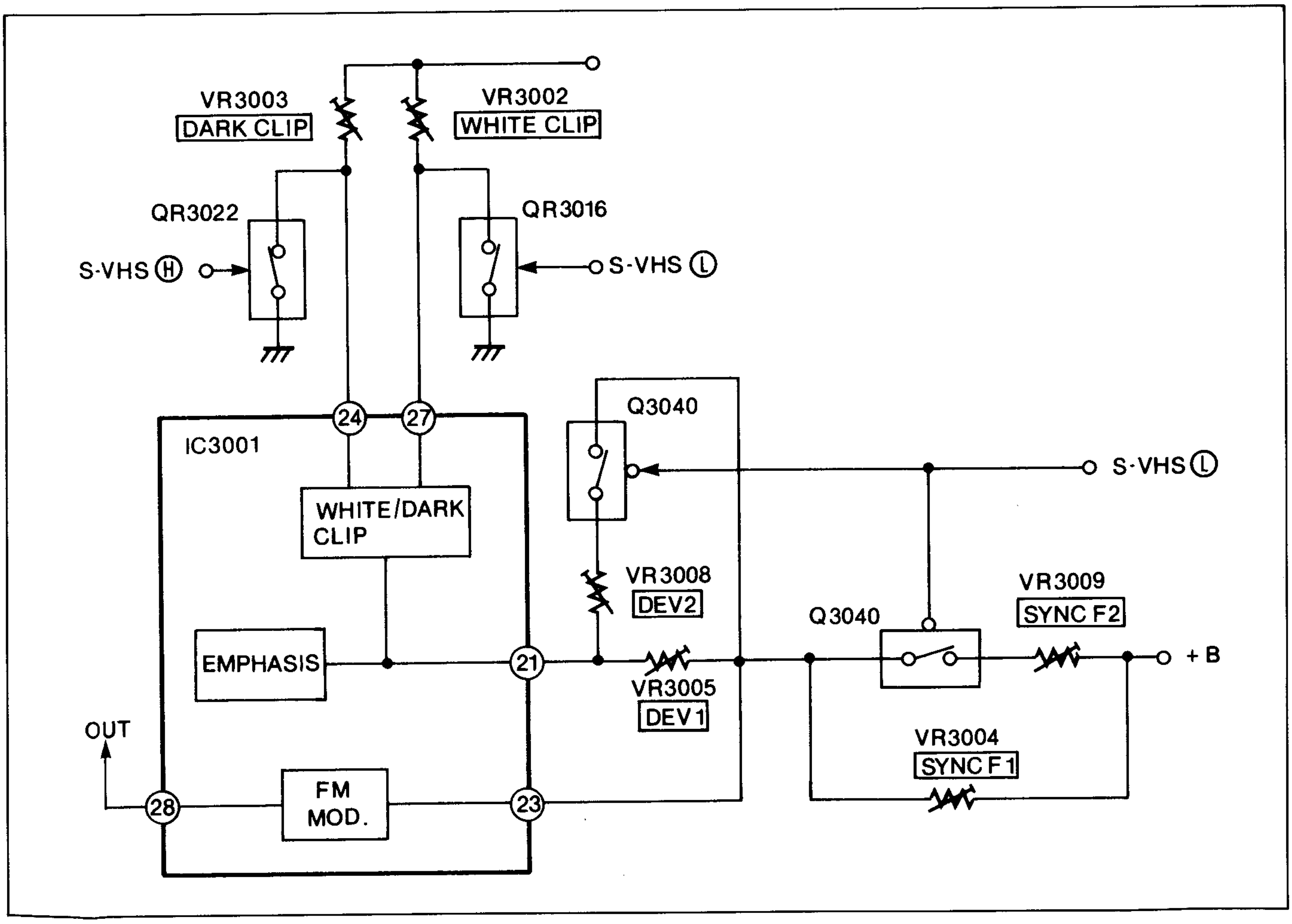

VR3003
DARK CLIP
VR3002
WHITE CLIP
QR3022
QR3016
S-VHS Ⓗ
S-VHS Ⓛ
Q3040
IC3001
24
27
WHITE/DARK CLIP
S-VHS Ⓛ
VR3008
DEV2
VR3009
SYNC F2
Q3040
EMPHASIS
21
VR3005
DEV1
+B
OUT
VR3004
SYNC F1
28
FM MOD.
23

Fig. 8 Frequency Modulation

[S–VHS/VHS Detection]

In recording mode, Selection of S–VHS or VHS is performed by manual SW on operation panel and S–VHS cassette hole detection switch on mechanical chassis.
But, during playback mode, Selection is performed automatically as follows.
The playback RF signal (ENVE. SIG from Head Amp) is Supplied to 4.15MHz Peaking amplifier Q3804.
When 4.15MHz Signal (Which is about FM VHS black level frequency) is supplied to Q3804, the output of Q3804 become high level signal due to high impedance of collector side.
Then, this high level signal is smoothed by Q3810 and C3814.
Eventually, high signal is supplied to Q3817 base side, it turns ON. Then low signal is sent to System Control circuit as S–VHS low signal.

[Pilot Burst circuit]

The 4.43 MHz signal is inserted to horizontal sync portion at before recording process,which is called pilot burst signal,as shown in Fig. 10,Fig. 11.
During play back mode,this pilot burst signal is removed from video signal at before play back signal process.
This pilot burst is used to judge whether incoming signal is composite video signal or Y/C separate component signal.
When composite signal is coming,this signal is separated to Y and C signal in video circuit.
But as this separation is not perfect,some colour interference could be occurred on TV screen because Y (luminance) signal could be still containing on C (chrominance) signal.
In order to avoid this interference,1 MHz trap circuit is provided at after Head Amp during playback when composite signal was input signal in REC (NV–M1 does not have this trap circuit because there is no composite signal input).
This pilot burst signal must be contained in recorded signal because it is decided under S–VHS standard.

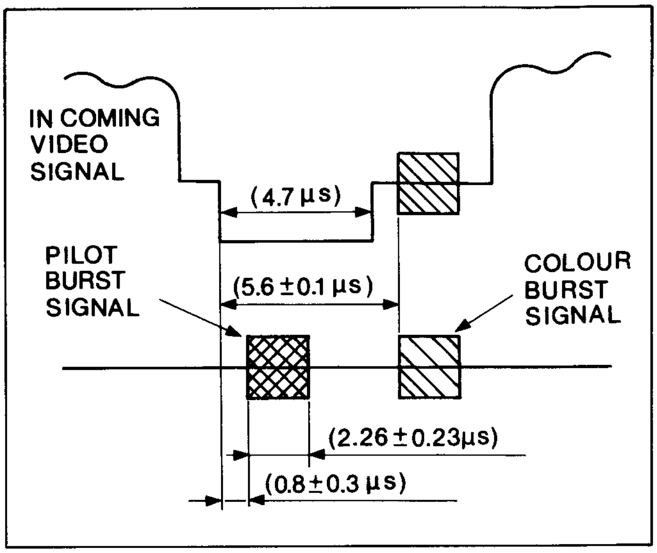

IN COMING VIDEO SIGNAL
(4.7 μs)
PILOT BURST SIGNAL
(5.6 ±0.1 μs)
COLOUR BURST SIGNAL
(2.26 ±0.23μs)
(0.8 ±0.3 μs)

Fig. 10 Pilot Burst Signal.

The phase of pilot burst is 270 degree different from U axis of input signal when Y/C separate input like NV–MS1.
(When composite signal input , the phase of pilot burst is 90 degree different from U axis of input signal).
These phase different is used to detect composite input or Y/C input.
IC3801 generate the pilot burst signal (4.43 MHz)from pin 24 using 4.43MHz oscillation signal.
In recording mode,pilot burst signal is added to specific portion decided by Rec Burst Gate pulse.(See timing chart Fig. 12)

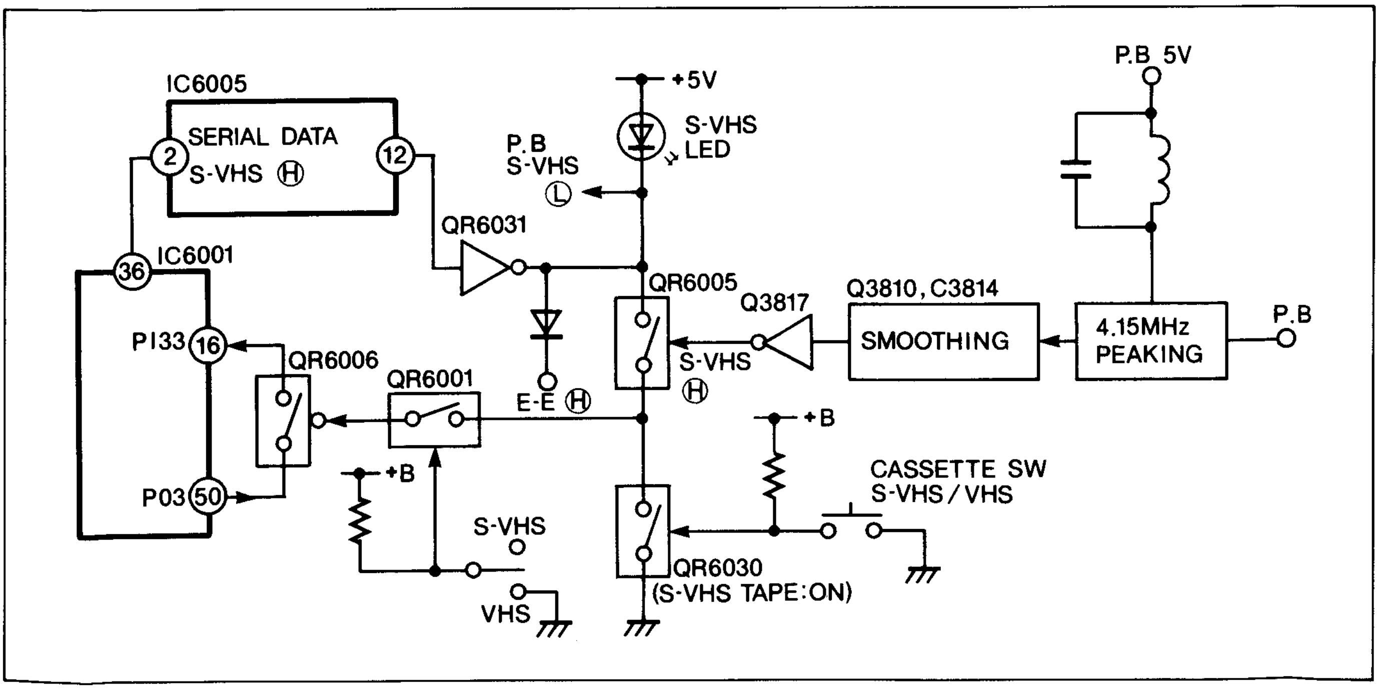

IC6005
SERIAL DATA
S-VHS Ⓗ
2
12
+5V
S-VHS LED
P.B S-VHS Ⓛ
QR6031
IC6001
36
P133
16
P03
50
QR6006
QR6001
E-E Ⓗ
QR6005
Q3817
S-VHS Ⓗ
Q3810, C3814
SMOOTHING
4.15MHz PEAKING
P.B 5V
P.B
+B
S-VHS
VHS
QR6030
(S-VHS TAPE:ON)
CASSETTE SW S-VHS/VHS

Fig. 9 S–VHS/VHS Detection

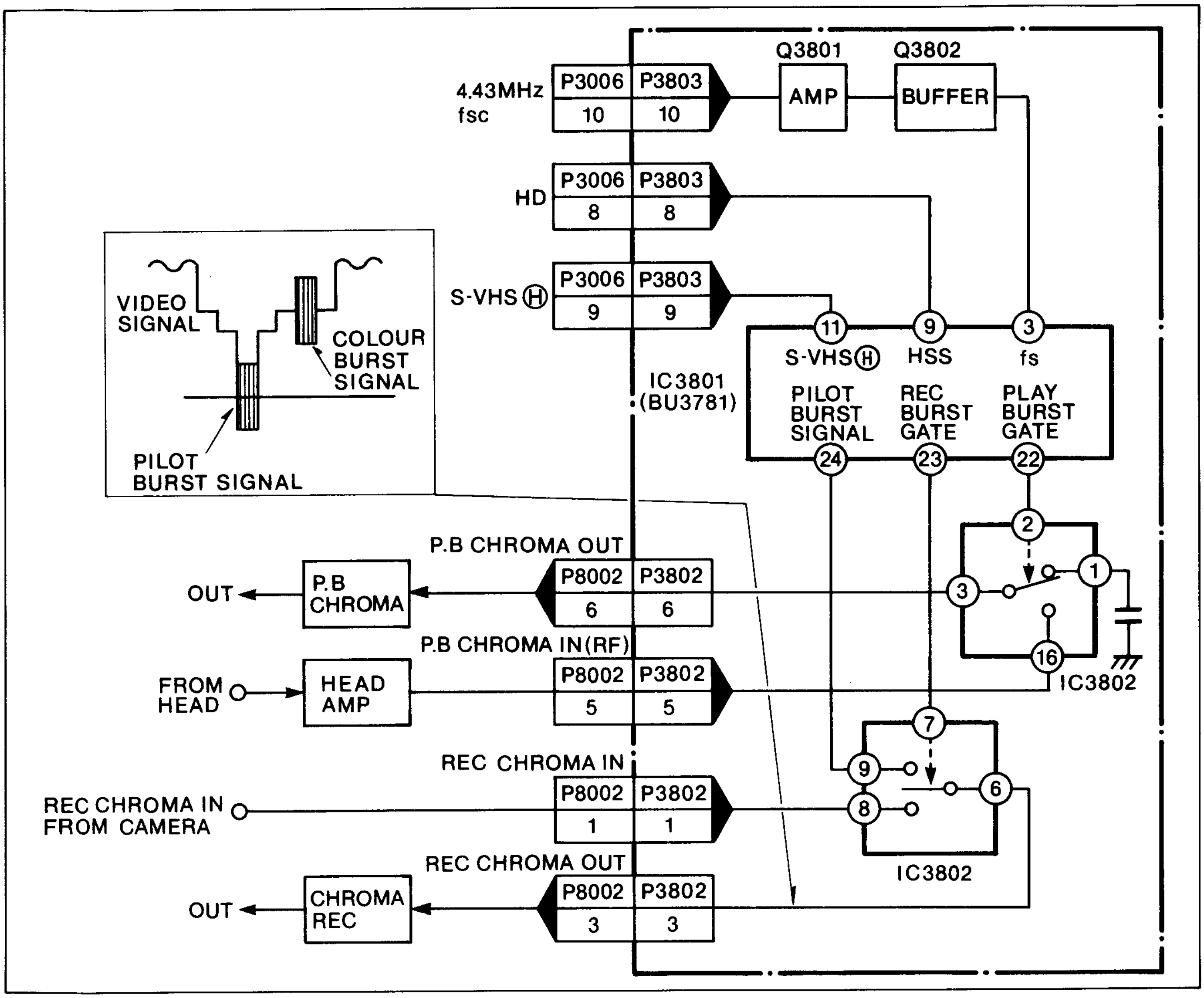

Q3801
Q3802
4.43MHz fsc
P3006
P3803
10
10
AMP
BUFFER
HD
P3006
P3803
8
8
S-VHS Ⓗ
P3006
P3803
9
9
VIDEO SIGNAL
COLOUR BURST SIGNAL
PILOT BURST SIGNAL
IC3801 (BU3781)
11
9
3
S-VHS Ⓗ
HSS
fs
PILOT BURST SIGNAL
REC BURST GATE
PLAY BURST GATE
24
23
22
P.B CHROMA OUT
OUT
P.B CHROMA
P8002
P3802
6
6
2
3
1
16
IC3802
P.B CHROMA IN(RF)
FROM HEAD
HEAD AMP
P8002
P3802
5
5
7
REC CHROMA IN
9
6
8
REC CHROMA IN FROM CAMERA
P8002
P3802
1
1
IC3802
REC CHROMA OUT
OUT
CHROMA REC
P8002
P3802
3
3

Fig. 11 Pilot Burst Circuit

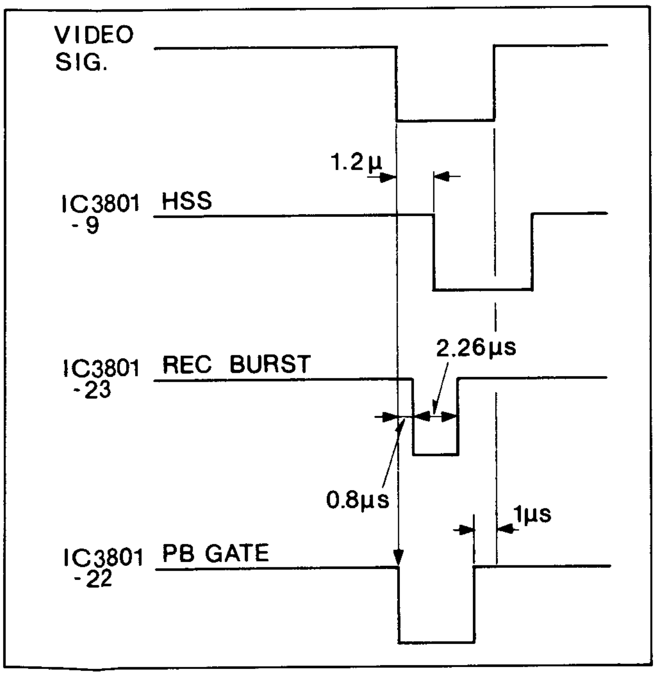


Fig. 12 Timing Chart of IC3801

4. Camera circuit

The camera section has been innovated to meet a demand of S-VHS high grade picture quality.
A new CCD image sensor increases the resolution and high colour fidelity against conventional CCD chip, it features incredibly high number of picture elements (420,000 elements: NV-MS1 298,000 elements: NV-M7) and latest circuit technology.
The main difference between NV-MS1 and NV-M7 cameras is a CCD drive timing because of different number of elements and various high speed shutter (1/1000sec., 1/500sec., 1/250sec). This section also describes only different point from NV-M7.
The block diagram is shown in Section 3.

			NV-M7	NV-MS1
GENERAL	WEIGHT		2.3kg	2.7kg
	POWER CONSUMPTION (REC MODE)		7.4W	9.0W
	RECODING/PLAYBACK TIME		240 MINUTES	240 MINUTES
MECHA-NISM	MECHANISM		VHS	VHS
	RECORDING SYSTEM & HEAD WIDTH		4 ROTARLY HEADS 70µm +1 FLYING ERASE HEAD	4 ROTARLY HEADS 70µm +1 FLYING ERASE HEAD
CAMERA	LENS		F1.2	F1.2
	PICK-UP ELEMENT		1/2″ CCD 297,984 CELLS	1/2″ CCD 420,000 CELLS
	FOCUS		PIEZO FOCUS	PIEZO FOCUS
	WHITE BALANCE		INDOOR/OUTDOOR/AWT	INDOOR/OUTDOOR/AWT
	IRIS		FULL AUTO/BACK LIGHT	AUTO/MANUAL
	HIGH SPEED SHUTTER		1/500, 1/1000	1/250, 1/500, 1/1000
VTR	EJECT		POWER ON/OFF EJECT	POWER ON/OFF EJECT
	FADE		AVAILABLE	AVAILABLE
	EXTERNAL RECORDING		NO	NO
	5 MINUTES TIMER	WITH BATTERY	STOP→POWER OFF	STOP→POWER OFF
		WITH AC BATTERY	STOP	STOP
	S-VHS/VHS		VHS	S-VHS/VHS
	HORIZONTAL RESOLUTION		240 LINES	400/240 LINES
E.V.F.	SIZE		2/3″	2/3″
	DATE/CLOCK INDICATIONS		DATE/CLOCK (1 YEAR BACK UP)	DATE/CLOCK (1 YEAR BACK UP)

Fig. 13

[CCD Drive circuit]

CCD drive circuit controls the CCD so that signal charge, converted from light source is transferred to the output synchronizined with horizontal and vertical sync as well as NV-M7 camera performed, however, timing pulses are different because of increasing the element and new shutter speed (1/250sec.).
In order to achieve 1/250 sec. high speed shutter, CCD chip is having excessive (longer) V-CCD as a memory (charge storage) area as shown below.
Because 1/250 sec. (62.5H) is 42.5H longer than vertical blanking (20H).
In order to compensate the lack of 42.5 horizontal lines, 50 horizontal lines of charge storage area is provided. (How it works is described in high speed shutter explanation later.)
But this Charge Storage area is only for 1/250sec. high speed shutter and is not used in normal mode.
Therefore, this charge storage area is skipped during normal mode using high speed charge transfer period.

Refer to illustration of CCD Drive Pulse Timing chart for normal mode.

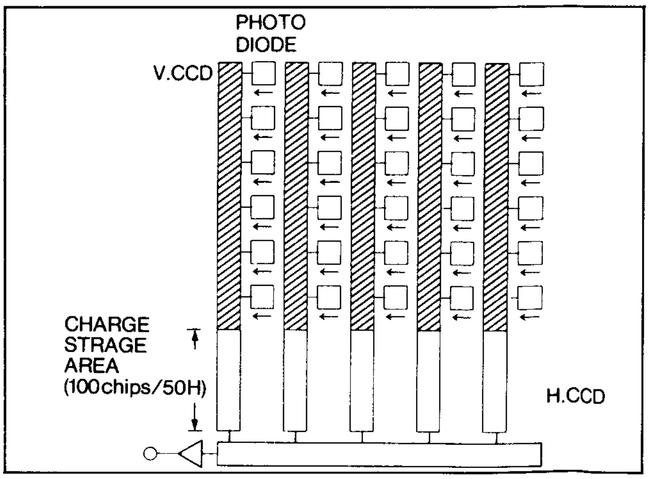


Fig. 14 New Construction of CCD

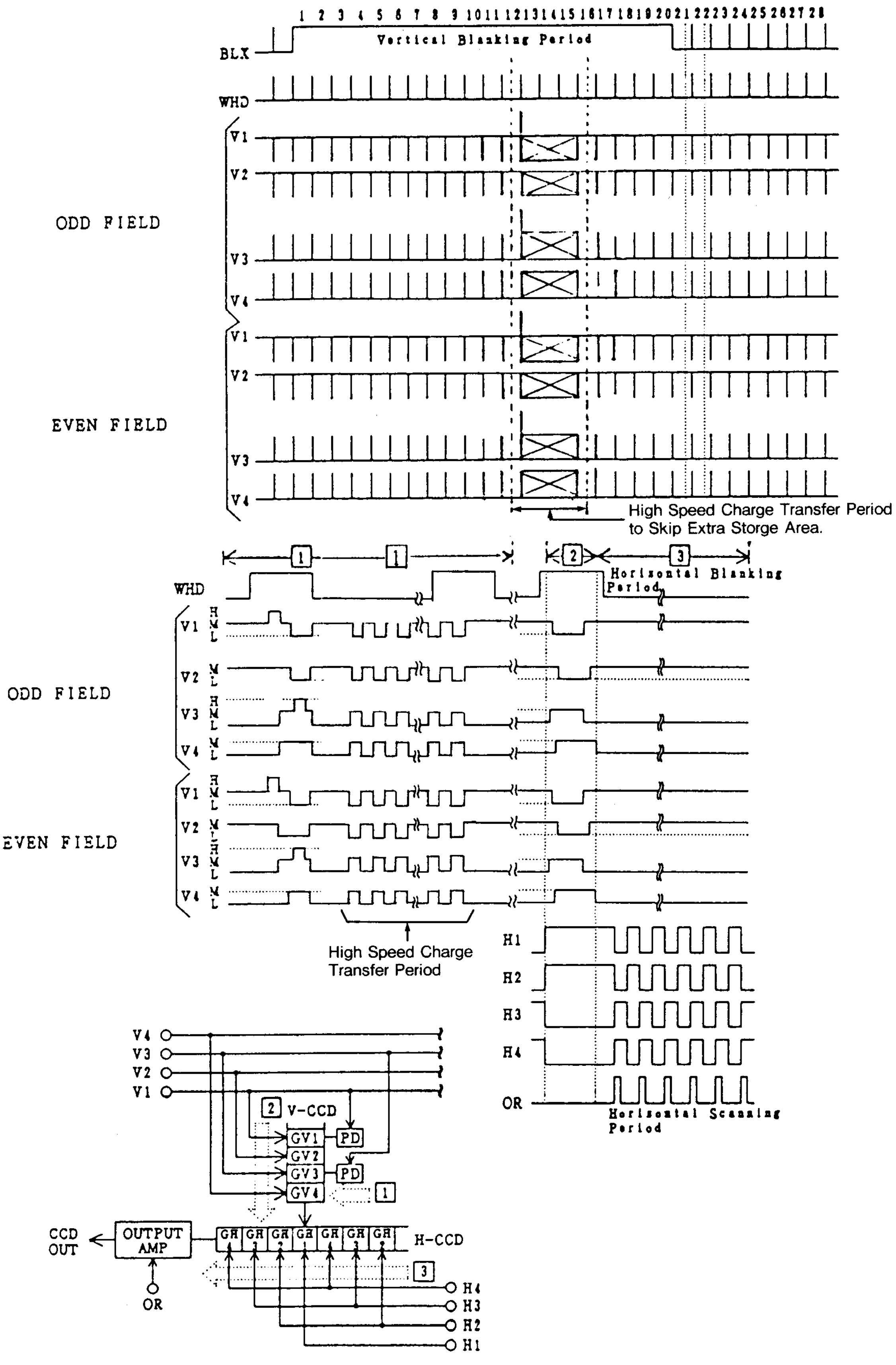
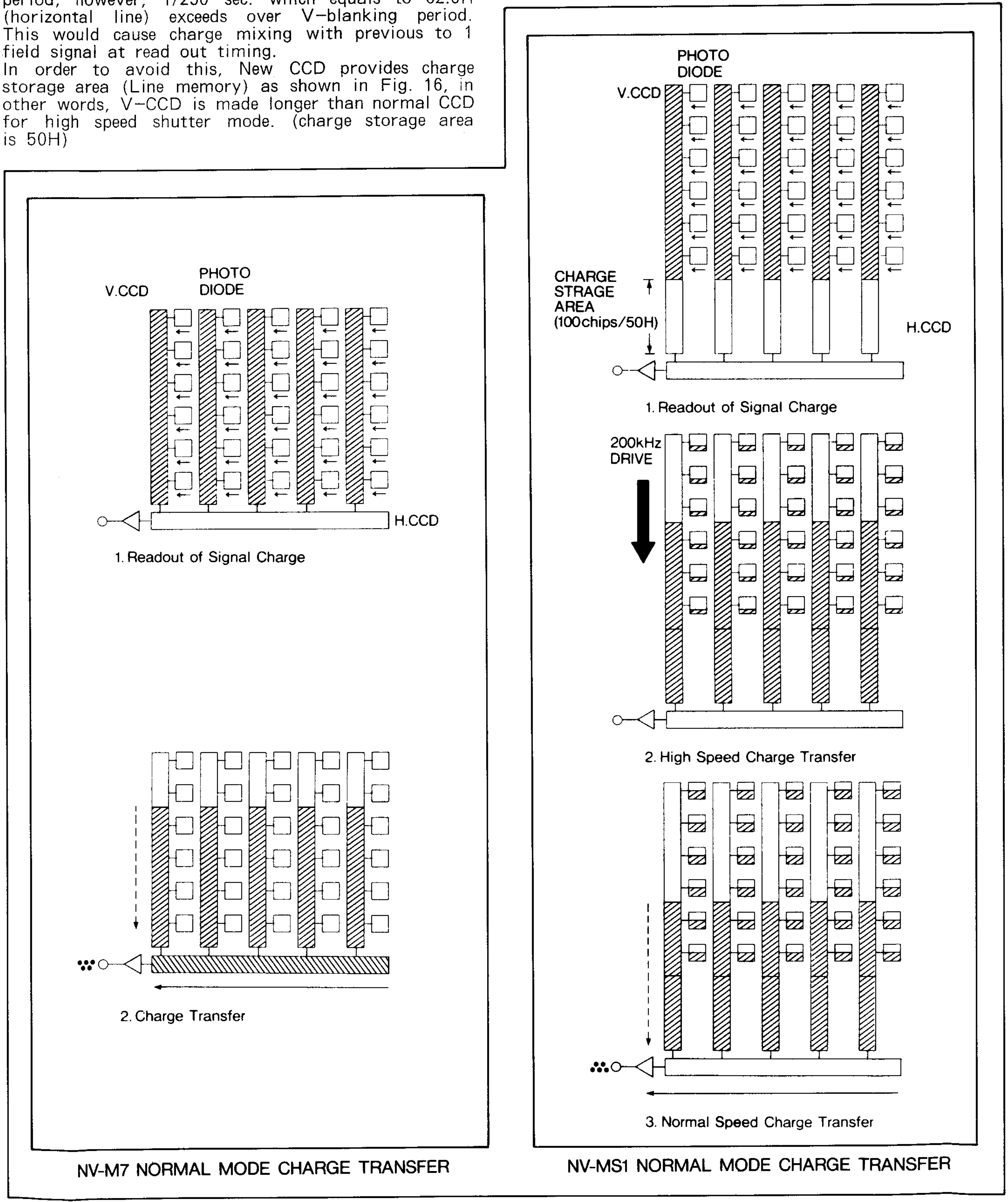

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
BLX
Vertical Blanking Period
WHD
V1
V2
V3
V4
ODD FIELD
EVEN FIELD
High Speed Charge Transfer Period to Skip Extra Storge Area.
1
2
3
Horizontal Blanking Period
H
M
L
High Speed Charge Transfer Period
H1
H2
H3
H4
OR
Horizontal Scanning Period
V-CCD
GV1
GV2
GV3
GV4
PD
CCD OUT
OUTPUT AMP
GH
H-CCD

Fig. 15 CCD Drive Pulse Timing Chart for normal mode

[High speed shutter function]

NV−MS1 equips 1/250 sec. shutter in addition to 1/1000 sec. and 1/500sec.
Even though principle of high speed shutter is same as NV−M7'S shutter, 1/250sec. shutter period is too wide to achieve. Because, normally, high speed shutter operation is performed in V−blanking period, however, 1/250 sec. which equals to 62.5H (horizontal line) exceeds over V−blanking period. This would cause charge mixing with previous to 1 field signal at read out timing.
In order to avoid this, New CCD provides charge storage area (Line memory) as shown in Fig. 16, in other words, V−CCD is made longer than normal CCD for high speed shutter mode. (charge storage area is 50H)

Even when read out timing in 1/250 sec. shutter mode, the last 50H signals of previous 1st field has gone to charge storage area. So, the charge just read out is not mixed with previous signal.
Due to longer V−CCD, signal charge has to be transferred quickly to skip the charge storage area at the beginning, then, transferring speed is changed to normal.


V.CCD
PHOTO DIODE
H.CCD
1. Readout of Signal Charge
2. Charge Transfer
PHOTO DIODE
V.CCD
CHARGE STRAGE AREA (100chips/50H)
H.CCD
1. Readout of Signal Charge
200kHz DRIVE
2. High Speed Charge Transfer
3. Normal Speed Charge Transfer

NV-M7 NORMAL MODE CHARGE TRANSFER

NV-MS1 NORMAL MODE CHARGE TRANSFER

Fig. 16 Charge Transfer

The timing chart of NEW–CCD drive signal (V.CCD drive signal V1) and the new drive operations in the high speed shutter mode are shown below.

A. Signal charge read–out in field A is shifted down to H.CCD line by line in normal timing (15.625KHz/64usec.)
B. After the charge transfer from V.CCD to Charge storage area is completed, signal charge to be thrown away is read out to V.CCDs.
C. Signal charge is shifted down until the charge transfer for field A is completed.
D. Signal charge remaining in V.CCDs is thrown away to charge drain by using 800KHz V.CCD drive signals.
E. Signal charge is read out from photo diodes to V.CCDs for field B.
F. The signal charge is quickly shifted down to Line Memories from V.CCDs by using 200KHz V.CCD drive signals.

Previous stated operations are repeated until the high speed shutter mode is released. Line Memories are required to achieve 1/250 sec. and 1/500 sec. high speed shutter operations. If there were no Line Memories, the signal charge to be discharged is read out to V.CCDs before charge form V.CCDs to H.CCDs for previous field is completed and the signal charges become mixed up.
The timing chart of Vertical Drive pulse (VD) and V.CCD drive signals are shown below. The read–out pulse is produced twice to complete the read–out of signal charge which is going be discharged. The high speed shutter is controlled by IC201 according to signal combination at IC201–10,11 as follows:

	IC201–10	IC201–11
NORMAL	L	L
1/250 SEC.	L	H
1/500 SEC.	H	L
1/1000 SEC.	H	H

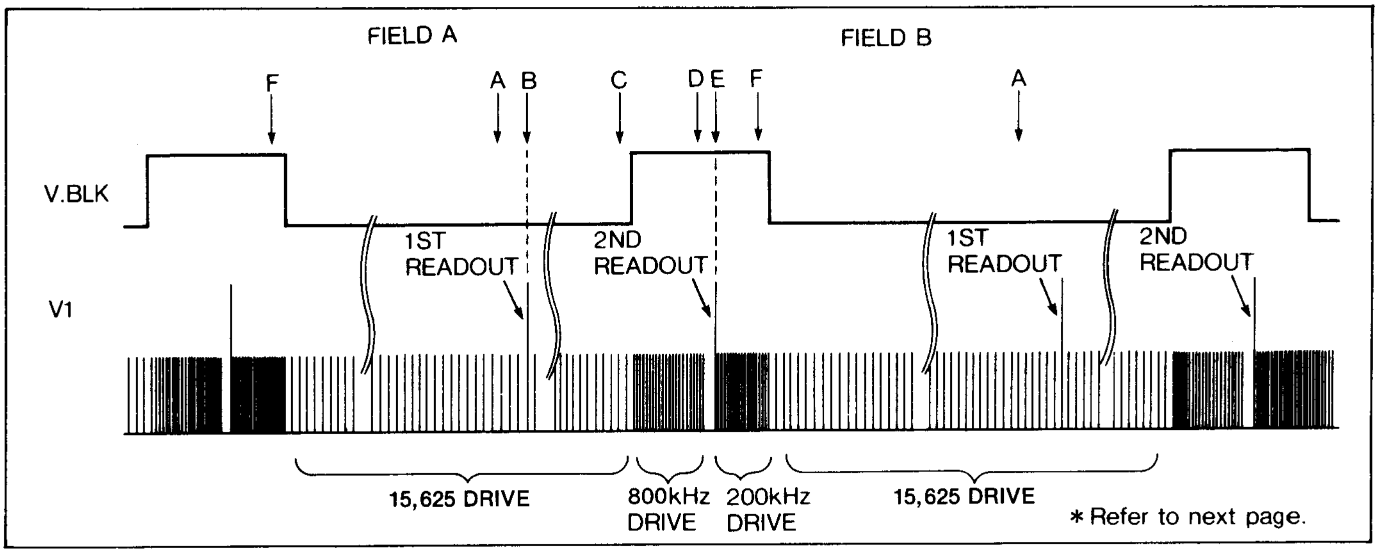

FIELD A
FIELD B
F
A
B
C
D
E
F
A
V.BLK
1ST READOUT
2ND READOUT
1ST READOUT
2ND READOUT
V1
15,625 DRIVE
800kHz DRIVE
200kHz DRIVE
15,625 DRIVE
* Refer to next page.

Fig. 17 high speed shutter timing of New CCD

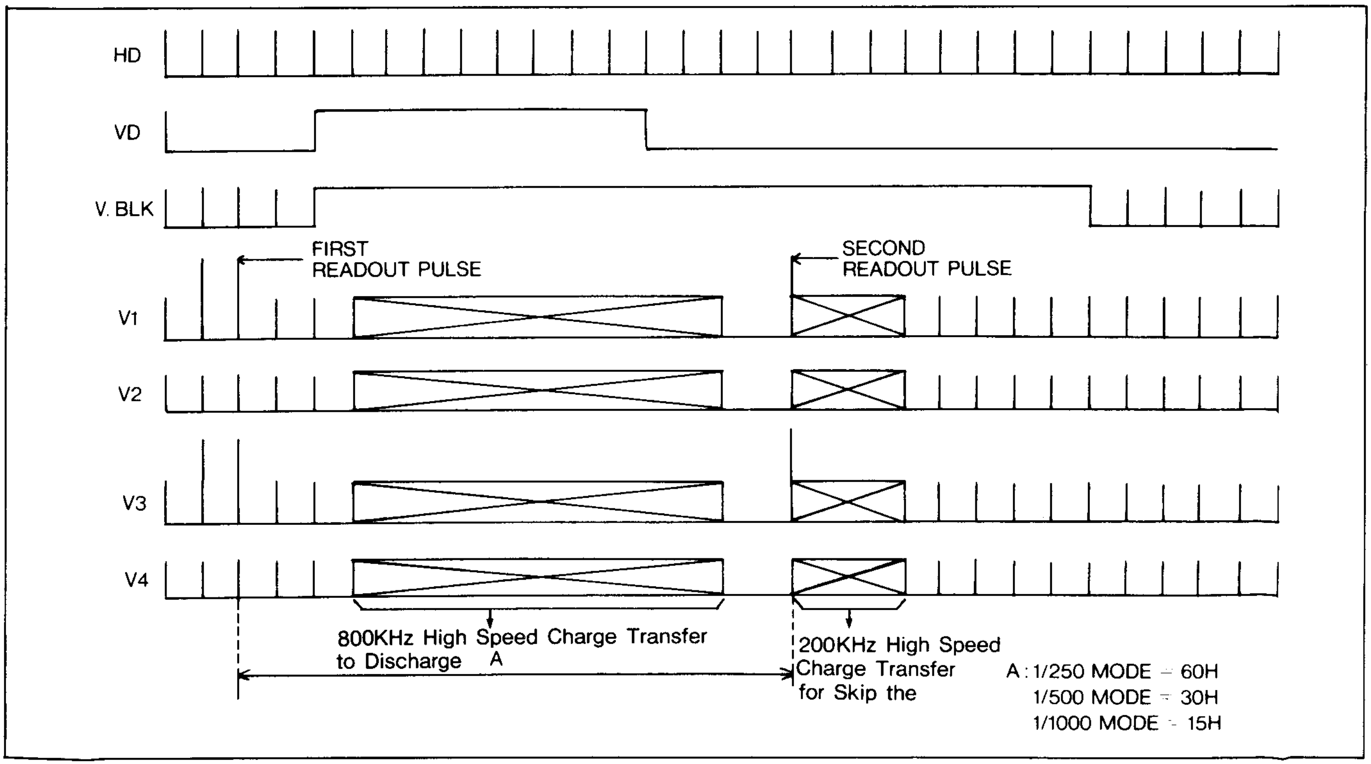

HD
VD
V. BLK
FIRST READOUT PULSE
SECOND READOUT PULSE
V1
V2
V3
V4
800KHz High Speed Charge Transfer to Discharge
A
200KHz High Speed Charge Transfer for Skip the
A: 1/250 MODE ≒ 60H
1/500 MODE ≒ 30H
1/1000 MODE ≒ 15H

Fig. 18 charge transferring condition of high speed shutter

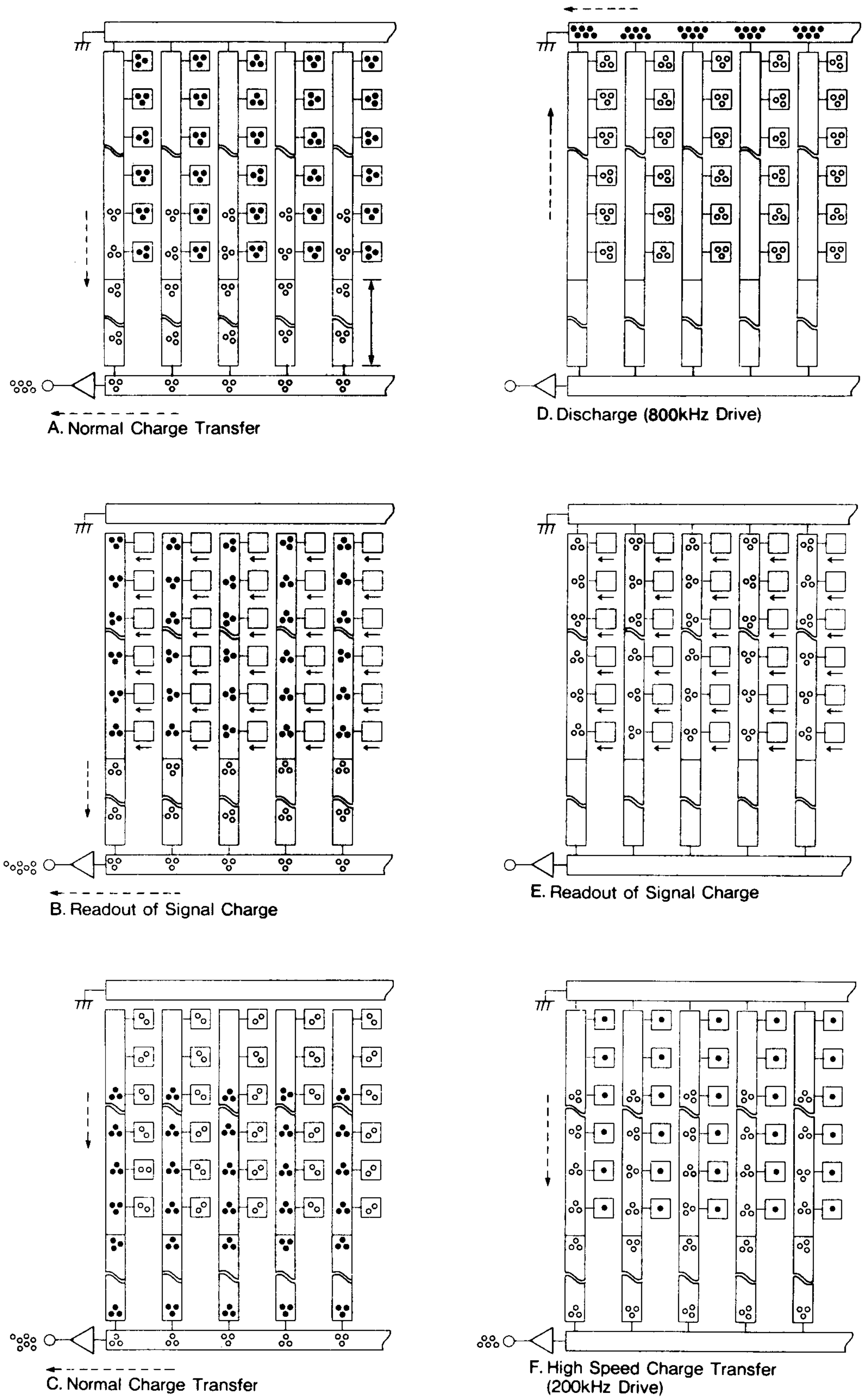

A. Normal Charge Transfer
D. Discharge (800kHz Drive)
B. Readout of Signal Charge
E. Readout of Signal Charge
C. Normal Charge Transfer
F. High Speed Charge Transfer
(200kHz Drive)

Fig. 19 The waveforms for High Speed Shutter Mode

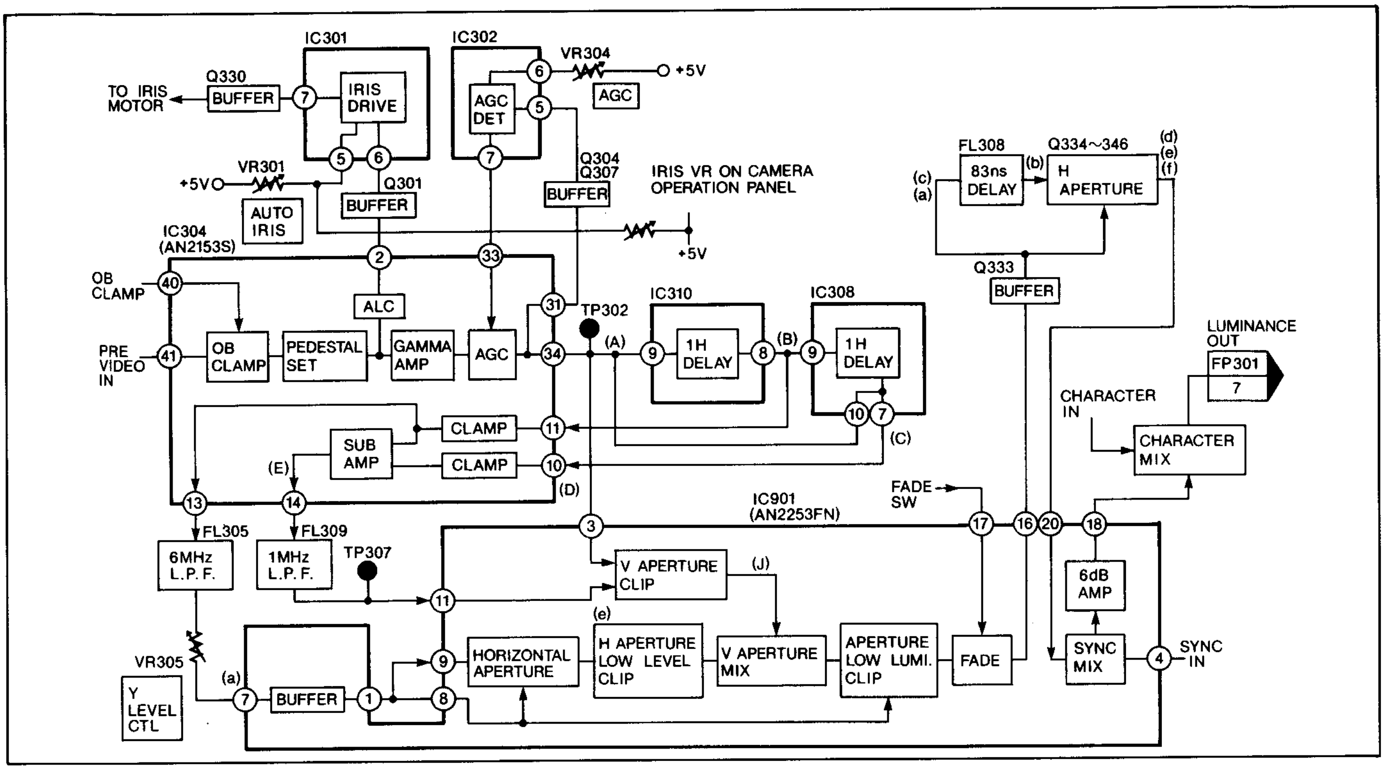

IC301
IC302
VR304
+5V
TO IRIS MOTOR
Q330
BUFFER
IRIS DRIVE
AGC DET
AGC
VR301
+5V
Q301
BUFFER
AUTO IRIS
Q304
Q307
BUFFER
IRIS VR ON CAMERA OPERATION PANEL
+5V
IC304 (AN2153S)
FL308
83ns DELAY
Q334~346
H APERTURE
(a)
(b)
(c)
(d)
(e)
(f)
Q333
BUFFER
OB CLAMP
ALC
TP302
IC310
IC308
PRE VIDEO IN
OB CLAMP
PEDESTAL SET
GAMMA AMP
AGC
(A)
1H DELAY
(B)
1H DELAY
LUMINANCE OUT
FP301
7
CHARACTER IN
CHARACTER MIX
CLAMP
SUB AMP
CLAMP
(C)
(E)
(D)
IC901 (AN2253FN)
FADE SW
FL305
FL309
6MHz L.P.F.
1MHz L.P.F.
TP307
V APERTURE CLIP
(J)
6dB AMP
(e)
VR305
(a)
BUFFER
HORIZONTAL APERTURE
H APERTURE LOW LEVEL CLIP
V APERTURE MIX
APERTURE LOW LUMI. CLIP
FADE
SYNC MIX
SYNC IN
Y LEVEL CTL

Fig. 20 Luminance Process

[Luminance Process Circuit]

The simplified block diagram for Luminance process is shown in Fig. 20.

As can be seen, luminance process is similar to NV–M7 except horizontal aperture correction and additional Iris volume is provided on operation panel so that user can control incoming light.

(a) Horizontal Aperture Correction

In the case of NV–MS1, Horizontal Aperture correction circuit is provided by discrete components, which are located after FADE control.

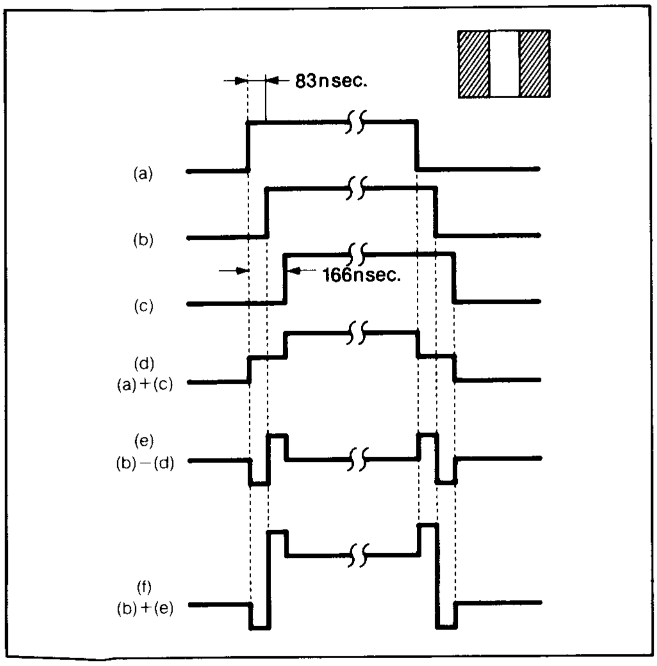

83nsec.
166nsec.
(a)
(b)
(c)
(d)
(a)+(c)
(e)
(b)−(d)
(f)
(b)+(e)

Fig. 21 Horizontal Aperture Correction

Although IC901 has Horizontal Aperture functions. IC901 has been designed for normal type CCD (not for S–VHS CCD). Thus the need for additional circuitry.
Horizontal aperture circuit is comprises of an 83nsec delay line, Q334, Q335 and Q336.
The function is same as NV–M7, but delay time is 83nsec. instead of 0.2usec and the base of Q334 is high impedance to reflect the incoming signal (instead of IC901–8 in NV–M7).

[Chrominance Process circuit]

The only difference between NV–MS1 and NV–M7 for chroma is colour control VR located outside operation panel so that user can slightly adjust colour phase.
The modulated R–Y and B–Y signals can be changed by colour control VR (located out side) as shown below.

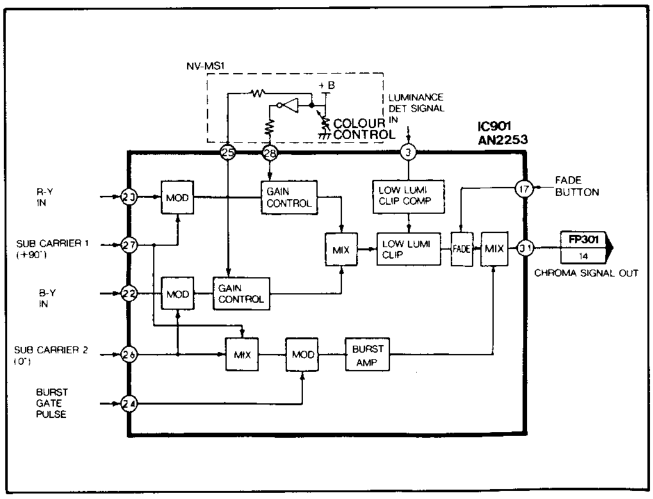

NV-MS1
+B
LUMINANCE DET SIGNAL IN
COLOUR CONTROL
IC901 AN2253
25
28
3
R-Y IN
23
MOD
GAIN CONTROL
LOW LUMI CLIP COMP
17
FADE BUTTON
SUB CARRIER 1 (+90°)
27
MIX
LOW LUMI CLIP
FADE
MIX
31
FP301
14
CHROMA SIGNAL OUT
B-Y IN
22
MOD
GAIN CONTROL
SUB CARRIER 2 (0°)
26
MIX
MOD
BURST AMP
BURST GATE PULSE
24

Fig. 22 Chrominance Encoder Circuit

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembyly steps for the cabinet parts and the P.C. boards in order to find the items necessary for servicing.
When reassembling perform the steps in the reverse order.

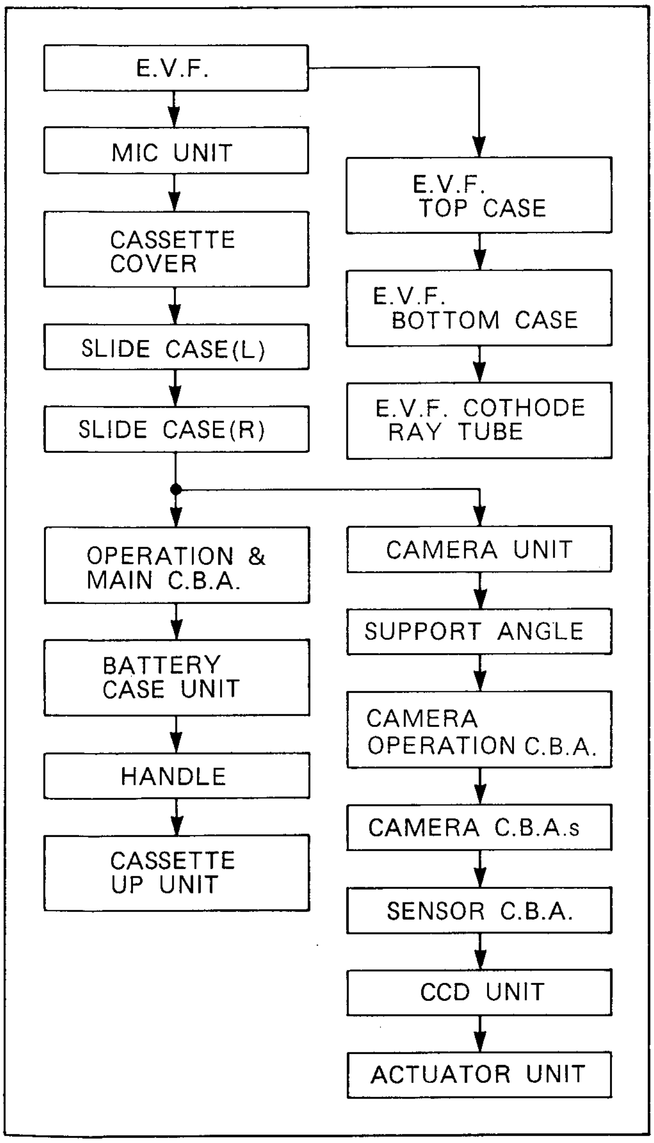

E.V.F.
MIC UNIT
CASSETTE COVER
SLIDE CASE(L)
SLIDE CASE(R)
OPERATION & MAIN C.B.A.
BATTERY CASE UNIT
HANDLE
CASSETTE UP UNIT
E.V.F. TOP CASE
E.V.F. BOTTOM CASE
E.V.F. COTHODE RAY TUBE
CAMERA UNIT
SUPPORT ANGLE
CAMERA OPERATION C.B.A.
CAMERA C.B.A.s
SENSOR C.B.A.
CCD UNIT
ACTUATOR UNIT

Fig. D1

Note:
1. (1) When removing the cabinet, work with care so as not to break the locking tabs.
2. (2) Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
3. (3) When re–installing, ensure that the connectors are connected and electrical components have not been damaged.
4. (4) Do not supply power to the Unit during disassembly.

2-1-2. DETAILED DISASSEMBLY METHOD

1. Removal of E.V.F. Unit

(1) Remove the E.V.F. Unit connector.
(2) Slide the E.V.F. Unit in the direction shown by the arrow.
(3) Remove the E.V.F. Unit while pushing on the Locking Lever on the Bottom of the Unit.
(4) Remove the earth lead from cabinet.

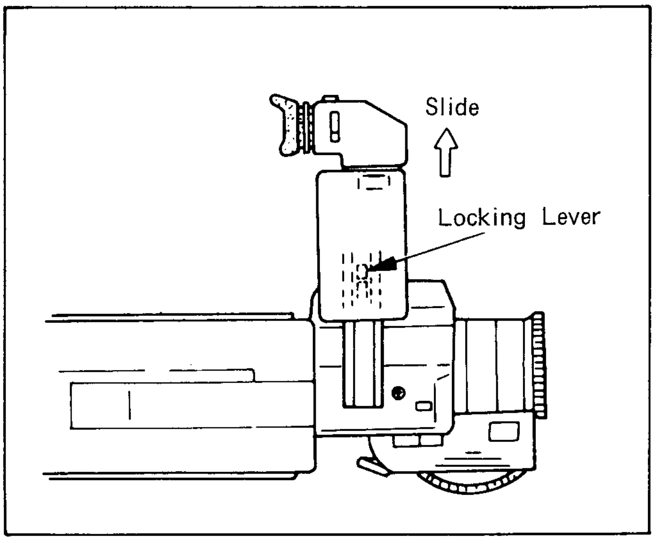

Slide
Locking Lever

Fig. D2

2. Removal of MIC Unit

(1) Remove 1 Screws (A).
(2) Slide the MIC Unit in the direction shown by the arrow.
(3) Disconnect the connector on the MIC Unit.
(4) Remove the earth read from cabinet.

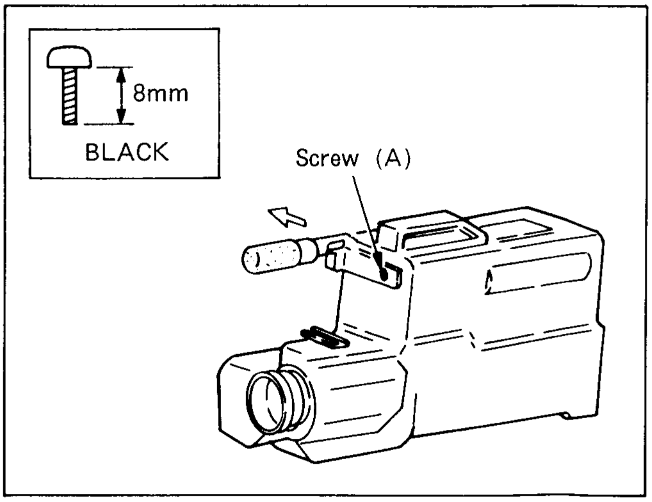

8mm
BLACK
Screw (A)

Fig. D3

3. Removal of Cassette Cover

(1) Remove 2 screws (B).
(2) Pull the Cassette Cover straight up to remove.

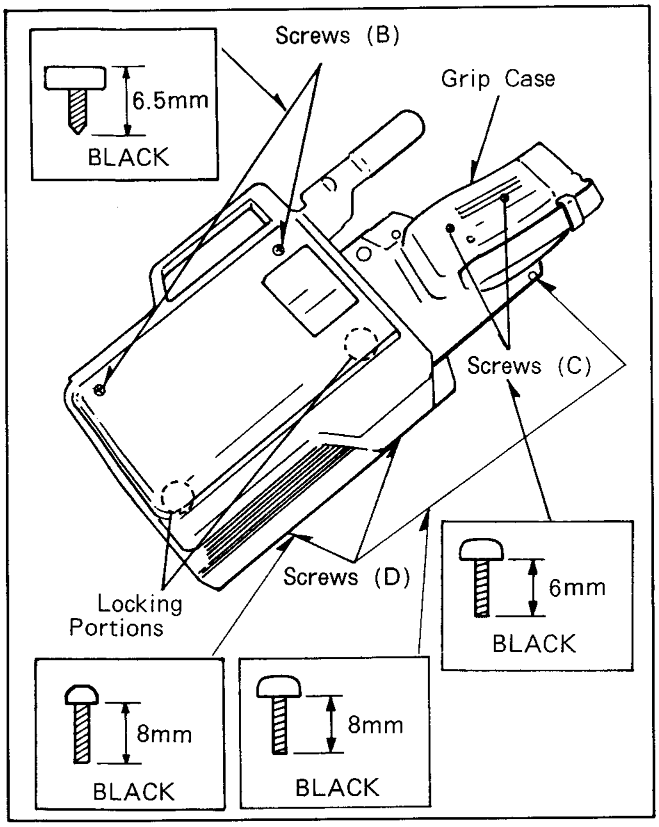

6.5mm
BLACK
Screws (B)
Grip Case
Screws (C)
Screws (D)
Locking Portions
6mm
BLACK
8mm
BLACK
8mm
BLACK

Fig. D4

Note:
Be carefull not to damage the Alignment Tabs, when removeing or realigning the Cassette Cover.

4. Removal of Side Case (R) Unit

(1) Remove 9 screws (E) in Fig. D5.
(2) Lift the Side Case (R) unit slightly. Then disconnect the connectors on the Side Case (R) Unit.

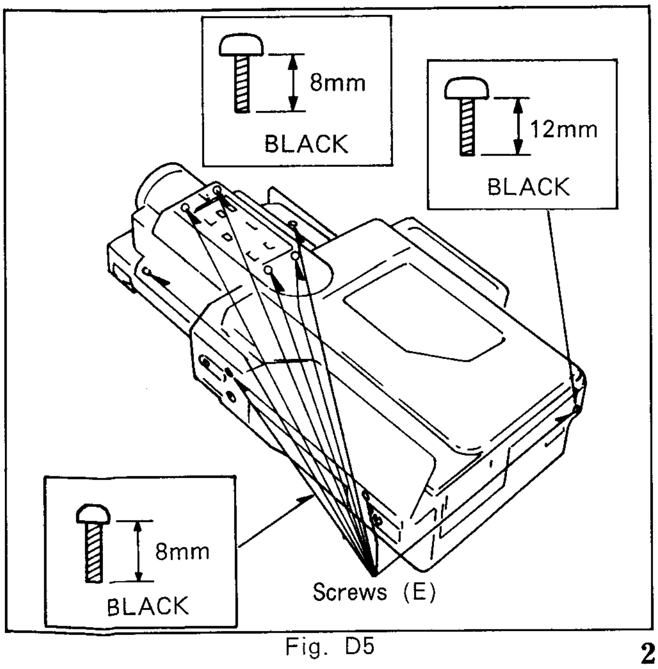

8mm
BLACK
12mm
BLACK
8mm
BLACK
Screws (E)

Fig. D5

5. Removal of Side Case (L) Unit

(1) Remove 2 screws (C) shown in Fig. D4.
(2) Remove 3 screws (D) shown in Fig. D4.
(3) Remove the lens hood and remove screw (F) shown in Fig. D6.

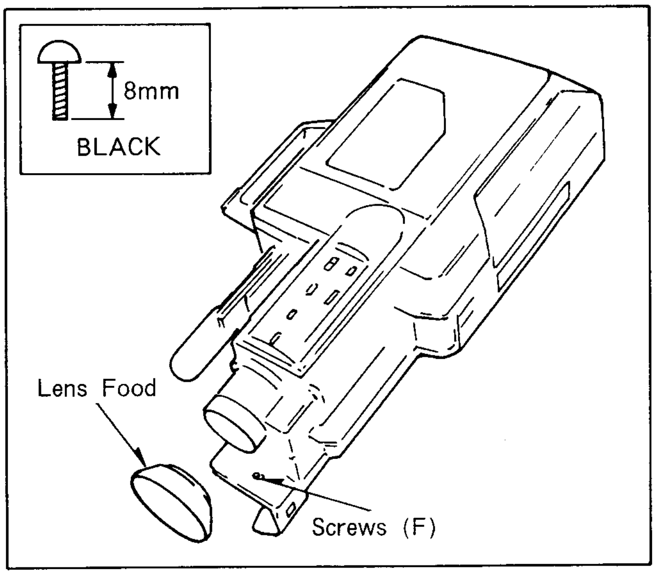

8mm
BLACK
Lens Food
Screws (F)

Fig. D6

(4) Lift the Side Case (L) Unit slightly. Then disconnect the 2 connectors..

6. Removal of Operation Panel Unit

(1) Unlock 4 locking Tabs (H).
(2) Lift the operation panel unit up slightly.

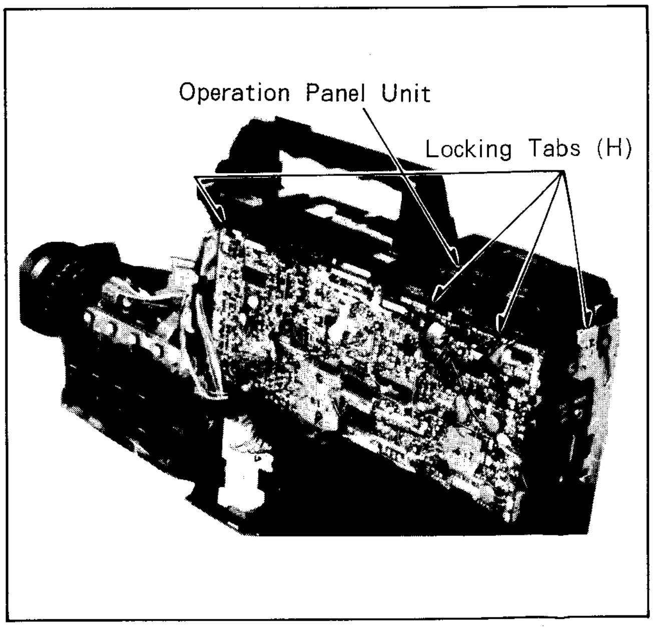

Operation Panel Unit
Locking Tabs (H)

Fig. D7

7. Opening of Operation C.B.A.

(1) Remove 2 screws (I).
(2) Disconnect P1 on operation C.B.A.
(3) Unsnap 2 locking Tabs (J).
(4) Open Operation/Main C.B.A.

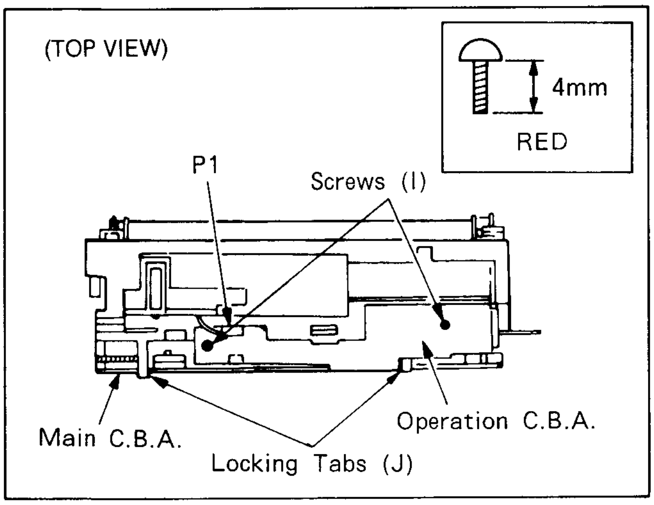

(TOP VIEW)
4mm
RED
P1
Screws (I)
Main C.B.A.
Locking Tabs (J)
Operation C.B.A.

Fig. D8

8. Opening of Battery Case Unit

(1) Open Main/Operation C.B.A. as shown in Fig. D9.
(2) Remove 3 screws (K) and 2 screws (L). Then lift the Battery Compartment slightly in order to release it from the locking pin.
(3) Loosen wires located around the Battery Compertment.

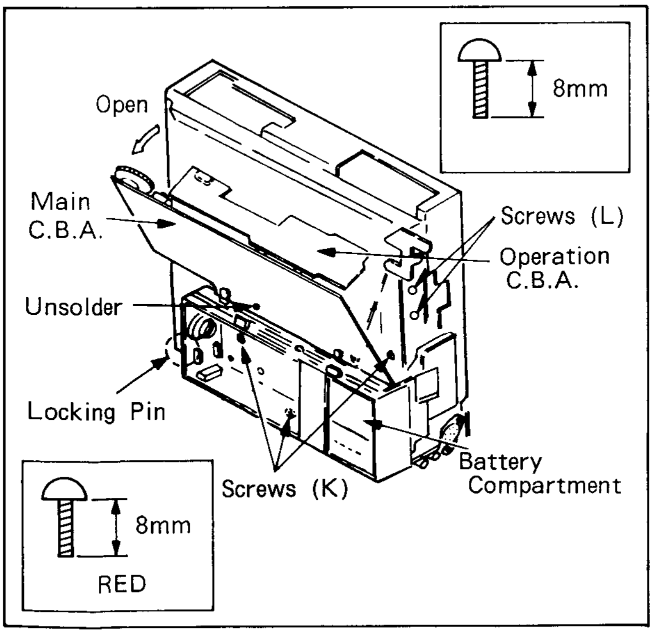

Open
8mm
Main C.B.A.
Screws (L)
Operation C.B.A.
Unsolder
Locking Pin
8mm
RED
Screws (K)
Battery Compartment

Fig. D9

9. Removal of Handle Unit

(1) Remove 7 screws (M) and 3 screws (N).
(2) Remove the Handle unit.

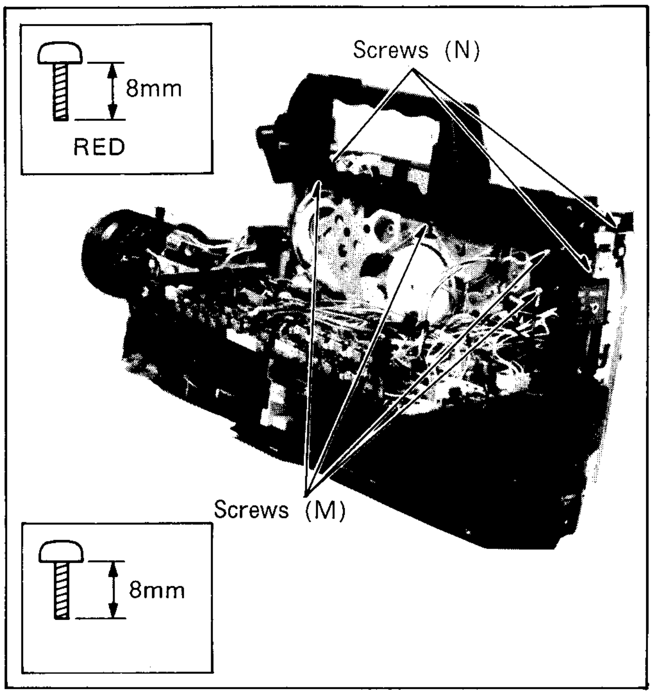

8mm
RED
Screws (N)
Screws (M)
8mm

Fig. D10

10. Removal of Cassette Compartment

(1) Remove 4 screws (O).
(2) Remove the cassette up unit.

Note:
When reinstalling the cassette up unit, install it in the closed (cassette down) condition.

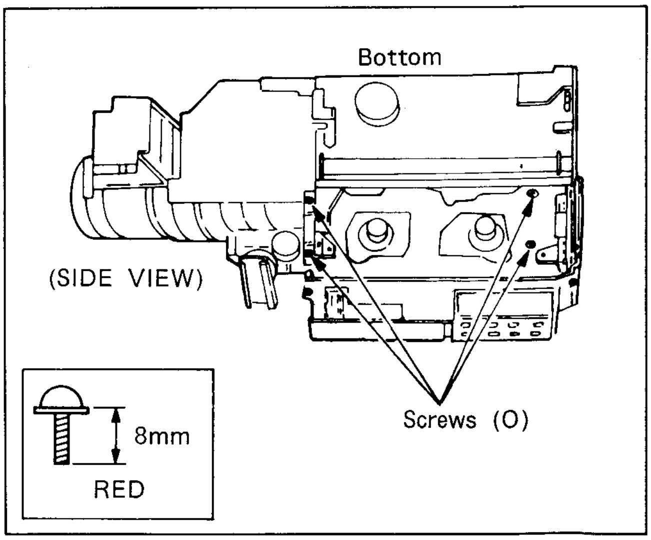

Bottom
(SIDE VIEW)
8mm
RED
Screws (O)

Fig. D11

11. Removal of Camera Unit

(1) Remove 2 screws (P).
(2) Disconnect connector P3004 and flexible connector P3003 on Main C.B.A.

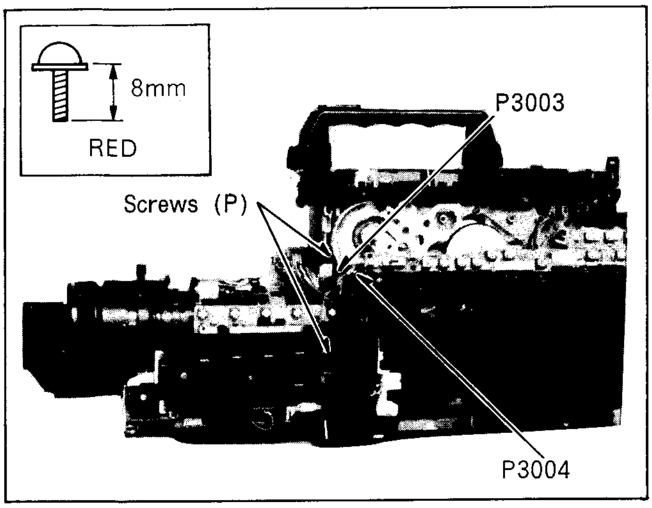

8mm
RED
P3003
Screws (P)
P3004

Fig. D12

12. Removal of Support Angle

(1) Remove 2 screws (Q).
(2) Remove Support Angle.

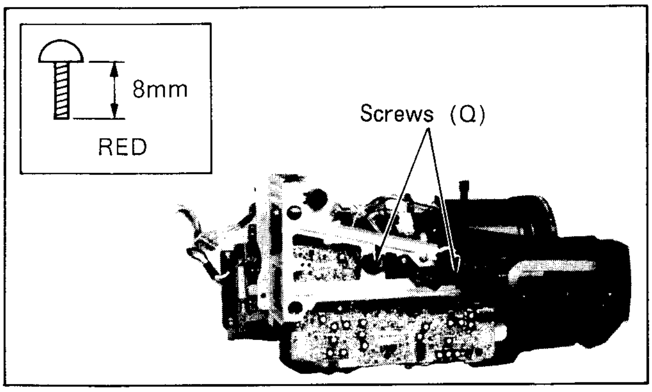

8mm
RED
Screws (Q)

Fig. D13

13. Removal of Camera Operation C.B.A.

(1) Remove 2 screws (R).
(2) Remove Camera Operation C.B.A.

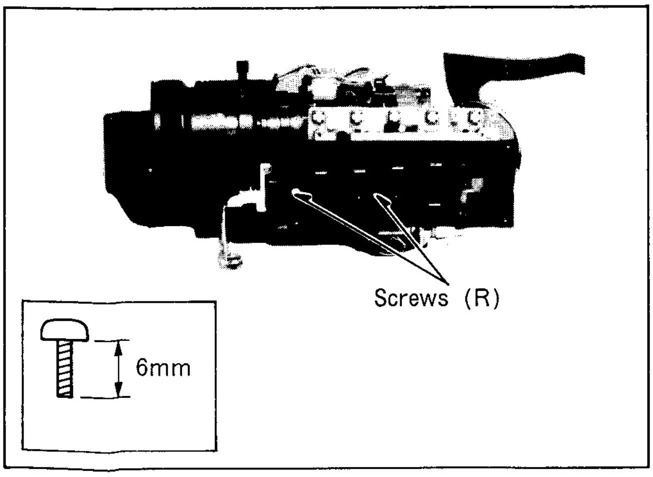

Screws (R)
6mm

Fig. D14

14. Removal of Camera C.B.A.

(1) Remove 5 screws (S) on Auto Focus and Process C.B.A's.
(2) Remove Auto Focus and Process C.B.A.

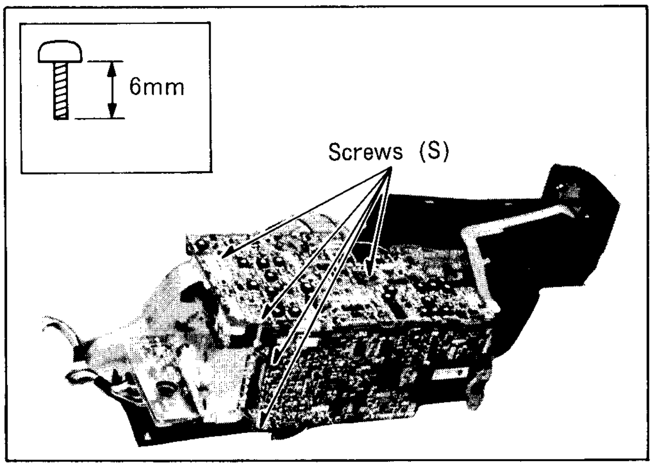

6mm
Screws (S)

Fig. D15

15. Removal of Sensor C.B.A.

(1) Remove the 3 screws (T).
(2) Remove Shield Case.

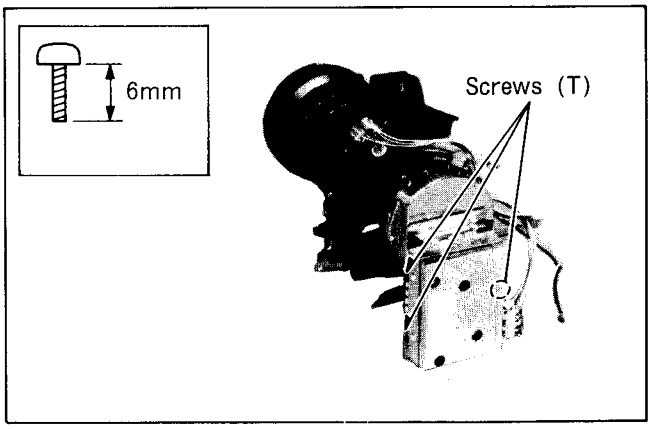

6mm
Screws (T)

Fig. D16

(3) Remove 2 screws (U) on sensor C.B.A.
(4) Remove Sensor C.B.A. then remove flexible wire FP201. On Sensor C.B.A.

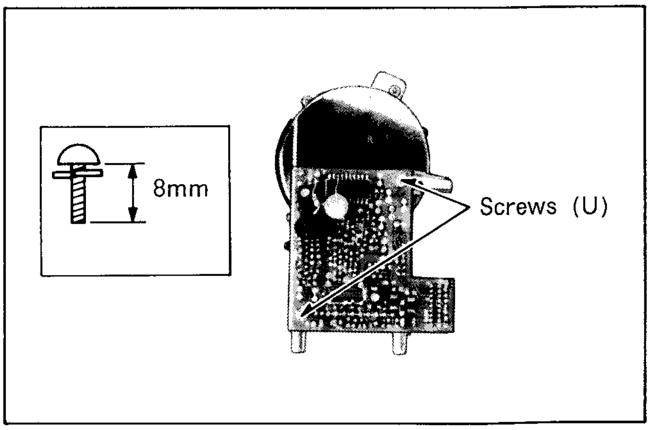

8mm
Screws (U)

Fig. D17

16. Removal of CCD Unit

(1) Remove 2 screws (V) then take out the Shield Case.
(2) Remove 2 screws (W) then take out the Shield Case.
(3) Remove 2 screws (X) then take out the CCD Unit.

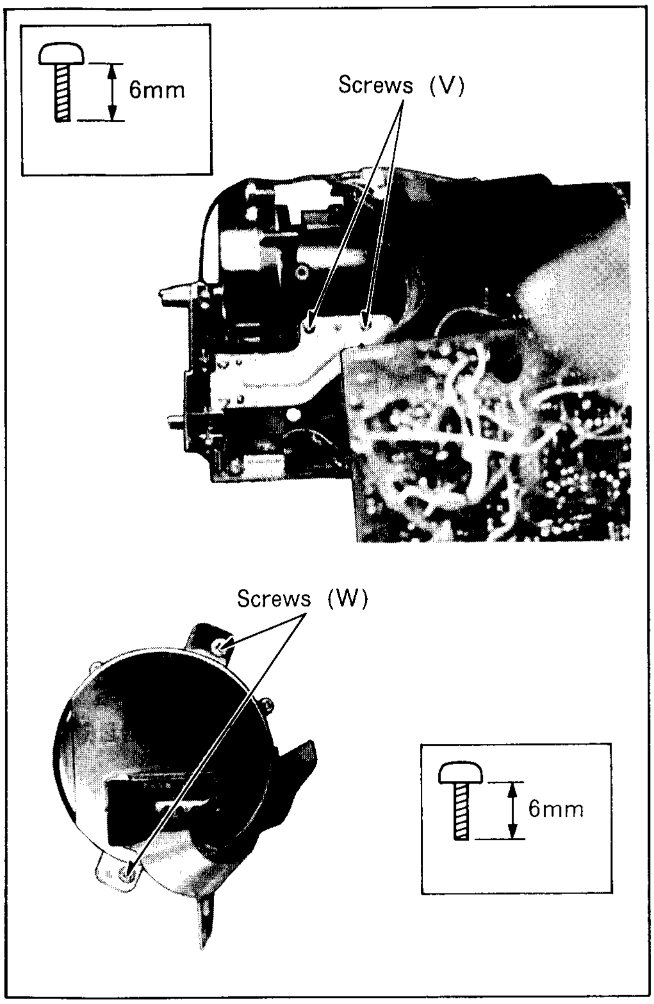

6mm
Screws (V)
Screws (W)
6mm

Fig. D18

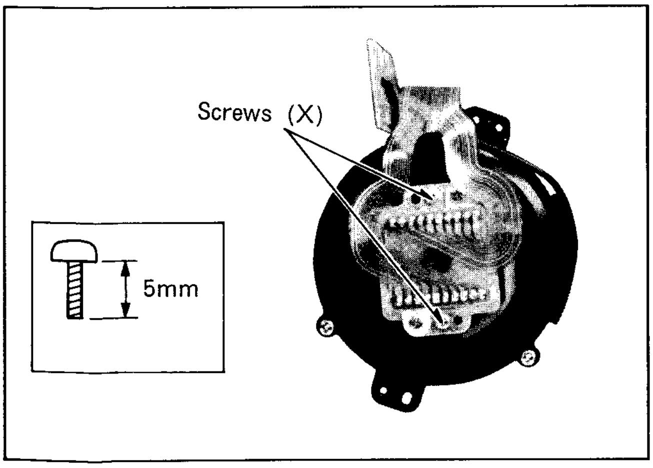

Screws (X)
5mm

Fig. D19

17. Removal of Actuator Unit

(1) Remove 3 screws (Y) and remove actuator unit.

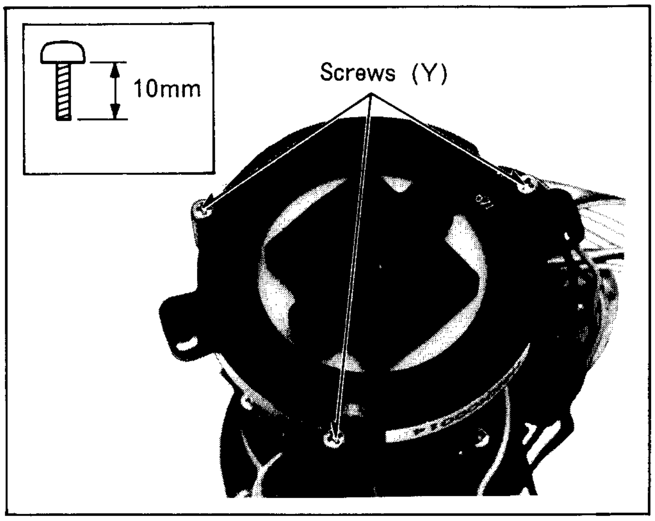

10mm
Screws (Y)

Fig. D20

18. Disassembly of E.V.F. Unit

(1) Remove 3 screws (A) on the bottom of the E.V.F. unit and then remove the Bottom Case.
(2) Remove CRT Case-B from CRT Case-A as shown in Fig. D21.

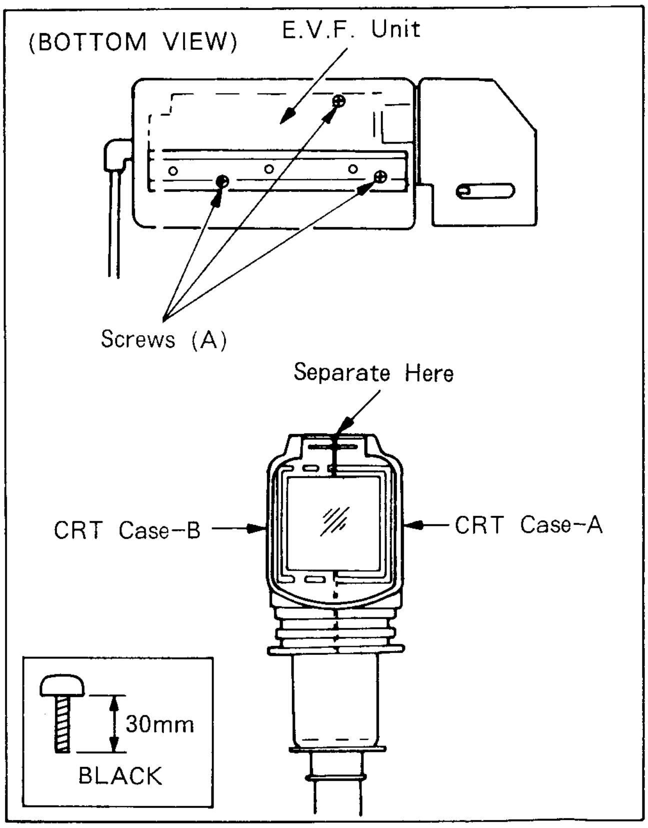

(BOTTOM VIEW)
E.V.F. Unit
Screws (A)
Separate Here
CRT Case-B
CRT Case-A
30mm
BLACK

Fig. D21

(3) Lift the CRT Assembly up as shown in Fig. D22.

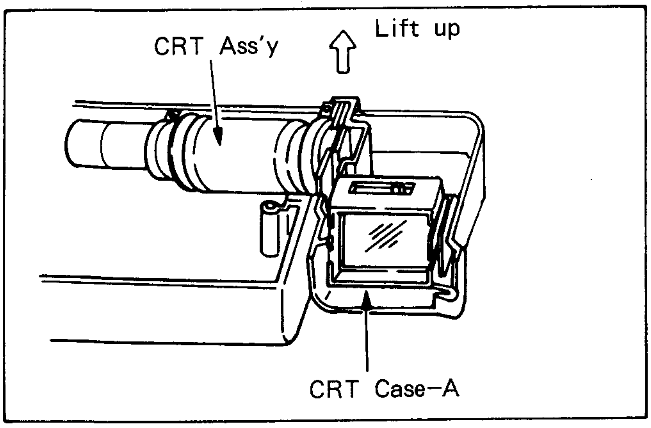

CRT Ass'y
Lift up
CRT Case–A

Fig. D22

(4) Rotate Nut (B) and then pull DY Assembly in the direction shown in Fig. D23 to remove it. Then the CRT can be replaced.
(5) For reinstallation, reverse the above steps.

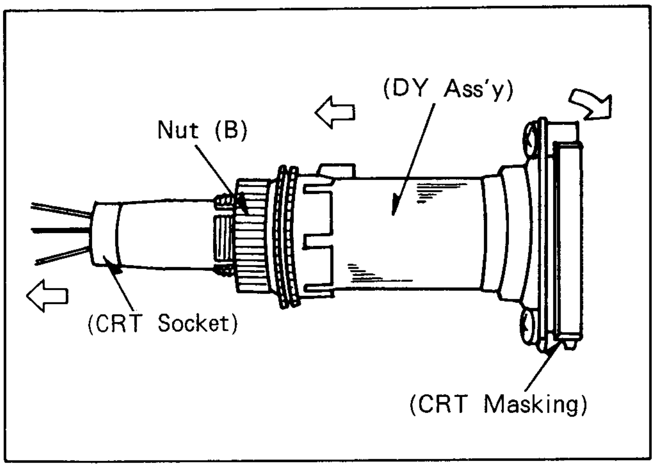

(DY Ass'y)
Nut (B)
(CRT Socket)
(CRT Masking)

Fig. D23

2-2. REPLACEMENT PROCEDURES

2-2-1. REPLACEMENT OF CCD UNIT

(1) After removing of the CCD unit install the new CCD unit.
(2) Assemble the unit suject to the reverse steps of disassembly procedures.

Note:
(1) Do not touch the sureface of CCD unit.
(2) Confirm the whole adjustment procedures for Camera section after replacing this CCD unit.

2-2-2. REPLACEMENT OF ZOOM MOTOR UNIT

(1) Remove 2 screws (C) and remove Zoom Motor Unit.
(2) Install the new Zoom Motor Unit. Prior to this replacement, no dust around the Zoom Motor, especially around the gear unit chould be confirmed.

2-2-3. REPLACEMENT OF FOCUS MOTOR UNIT

(1) Remove the 2 screws (D) and remove the Focus Motor Unit.
(2) Install the new Focus Motor Unit.
Prior to this replacement, no dust around the Focus Motor Unit, especially around the gear should be confirmed.
(3) After this replacement, all the correct adjustments for all parts of auto–focus should be comfirmed.

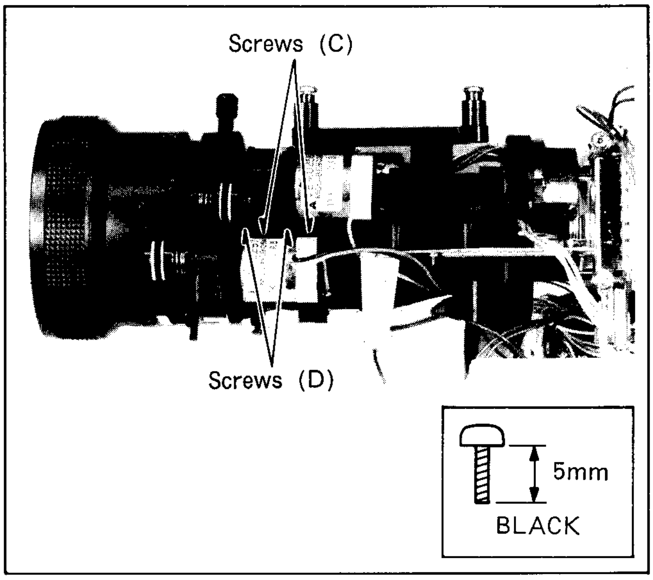

Screws (C)
Screws (D)
5mm
BLACK

Fig. R1

2-2-4. REPLACEMENT OF DD CYLINDER UNIT

Work with extreme care when removing or replacing the DD cylinder unit.
Do not touch video heads during servicing.

(1) Remove the screw (E) to take the Earth Holder Unit out.

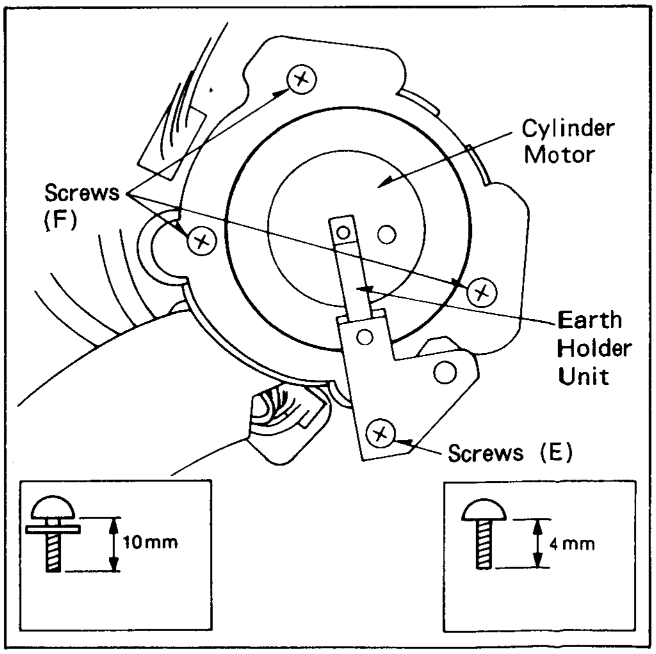

Cylinder Motor
Screws (F)
Earth Holder Unit
Screws (E)
10mm
4mm

Fig. R2

(2) Remove the 3 screws (F) to take DD cylinder unit out.

Note:
Since there is very little clearance between DD cylinder unit and chassis handle with care.

(3) Reinstall the new DD cylinder unit, tighten the 3 screws (F).

2-2-5. REPLACEMENT OF UPPER CYLINDER UNIT

Be sure to observe the following procedures when replacing upper cylinder unit.

(1) REMOVING THE UPPER CYLINDER UNIT

a. Remove 2 screws as shown in Fig.R3.
b. Unsold 10 soldered portions indicated by arrows on circuit board.
c. Remove the upper cylinder unit by lifting it upwards.

Note:
Soldered portion can be easily removed by using solder sucking wire,etc.

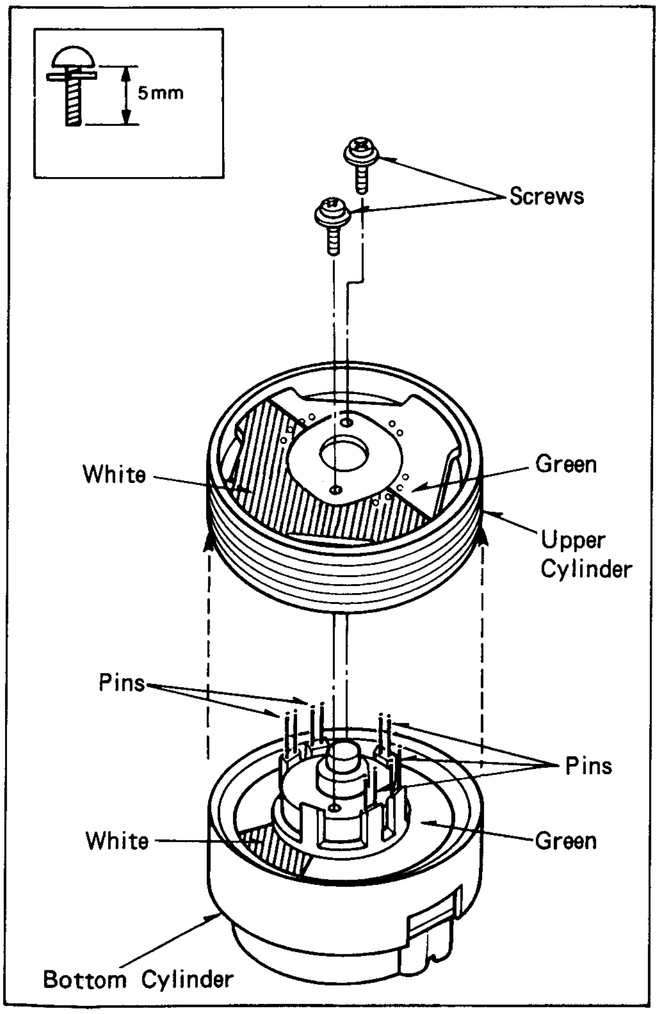

5mm
Screws
White
Green
Upper Cylinder
Pins
Pins
White
Green
Bottom Cylinder

Fig. R3

(2) REINSTALL THE UPPER CYLINDER UNIT

The upper cylinder unit can be reinstalled by reversing the removal procedure.
However, when reinstalling ,it must be extremly careful so that both the white and green portions of circuit board on the upper cylinder unit will correctly match the white and green portions of the circuit board on bottom cylinder as shown in Fig. R4 .

Note:
If the upper cylinder unit is reversely installed , no colour will appear when playing back a pre-recorded tape.

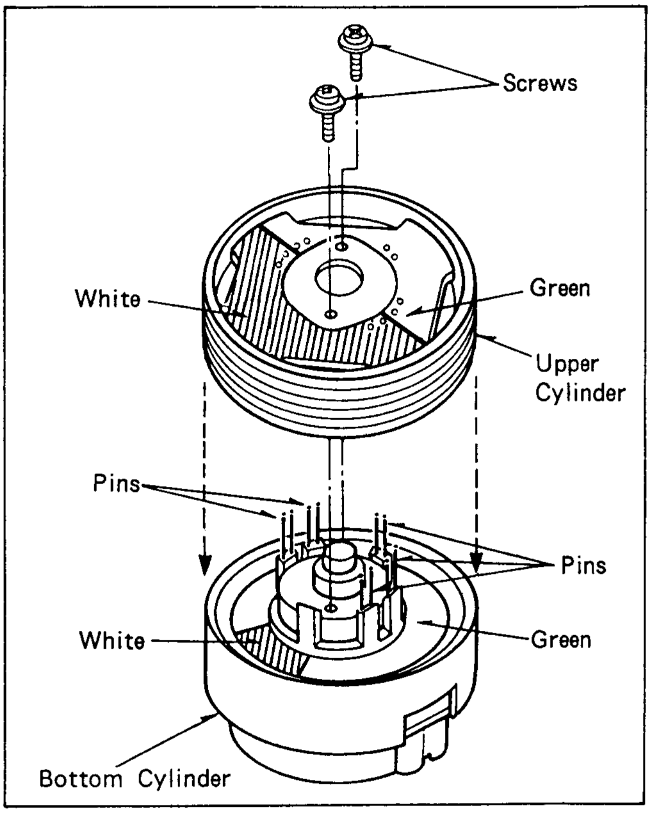

Screws
White
Green
Upper Cylinder
Pins
Pins
White
Green
Bottom Cylinder

Fig. R4

2-2-6. REPLACEMENT OF CAPSTAN STATOR UNIT

* Equipment required:
Reel Table Height Gauge (VFK0190)
* Specification:.....0.5+−0.05mm

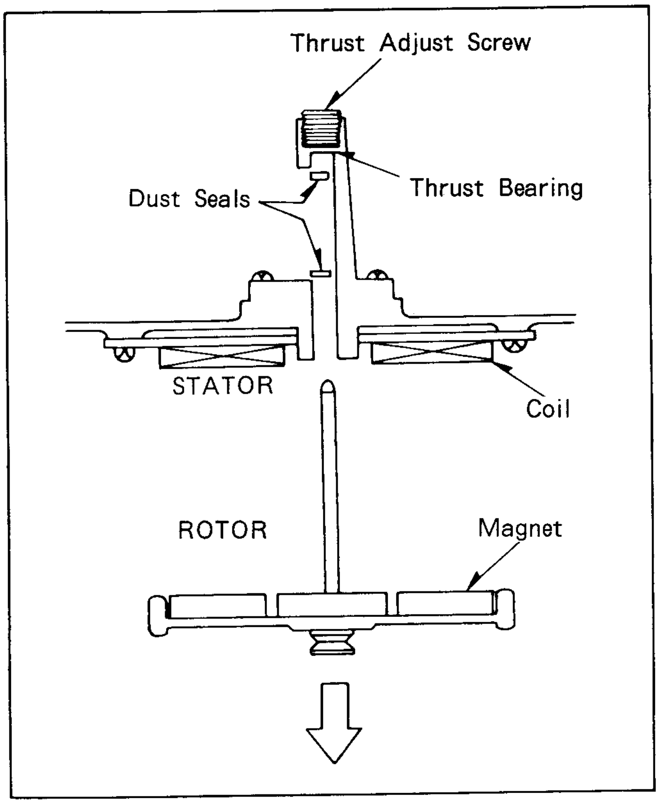

Thrust Adjust Screw
Dust Seals
Thrust Bearing
STATOR
Coil
ROTOR
Magnet

Fig. R5

(1) Remove the 2 screws and take belt cover off. After that remove the capstan belt.
(2) Tighten the Thrust Adjust Screw fully and pull the capstan rotor.

Note:
In this time pay attention not to lose two pieces of Dust Seal.

(3) Replace the new rotor with two pieces of Dust Seal.

Note:
(1) Pay attention to the replaced new rotor not to shock because of magnet absorbtion. So hold the rotor firmly and replace it carefully.
(2) In this replacement, do not touch the Capstan shaft with any hard material like drivers or tweezers.

(4) After replacement, wipe off the Capstan shaft to remove oil, grease or dust.
(5) Unscrew Thrust Adjust Screw till the rotor is just touching to the stator.
(6) Turn this mechanism upside down and place the Reel Table Height Gauge so that the gauge fits to the chassis correctly, and read the height.
(7) Adjust the Thrust Adjust Screw so that the height difference just meets in the specification (0.5 +− 0.005mm) reading the height from the gauge.

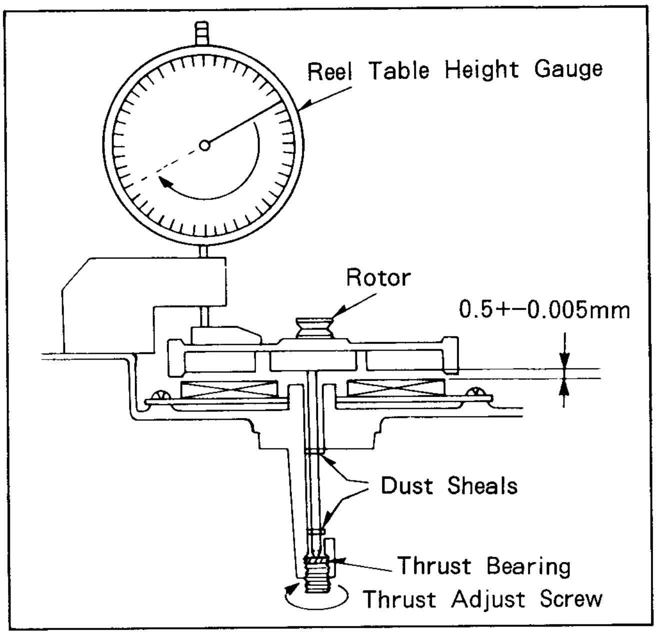

Reel Table Height Gauge
Rotor
0.5+−0.005mm
Dust Sheals
Thrust Bearing
Thrust Adjust Screw

Fig. R6

Note:
If the Thrust Adjust Screw is fully opened, you have to pay attention not to lose Thrust Bearing.
When it is fixed, confirm that the direction of Thrust Bearing is correct as shown below.

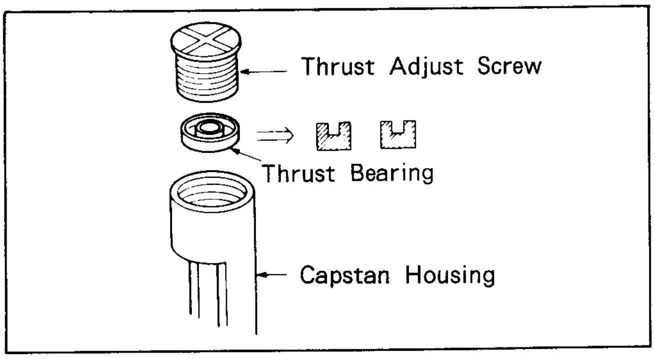

Thrust Adjust Screw
Thrust Bearing
Capstan Housing

Fig. R7

2-2-7. REPLACEMENT OF TENSION BAND

Memo:

(1) Remove the cassette conpartment.

(2) Remove a retaining ring and take out a Rew Arm (A) Unit.

(3) Remove a rataining ring and a snap washer and take out a tension Band Unit.

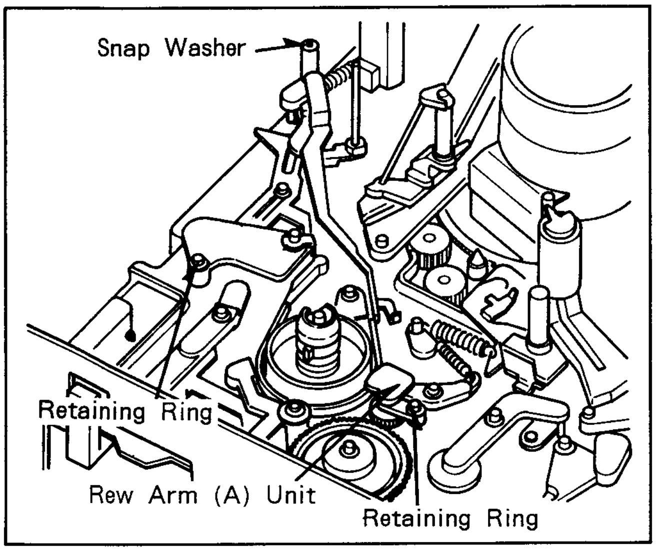

Snap Washer
Retaining Ring
Rew Arm (A) Unit
Retaining Ring

Fig. R8

(4) Remove a Tension Band from Band Release Arm and Tension Arm Unit.

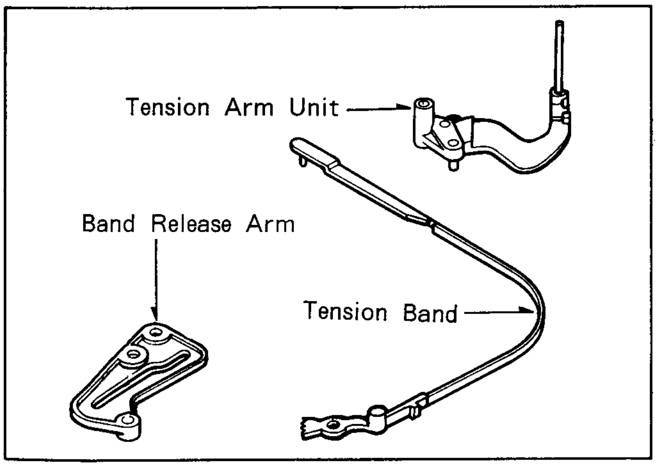
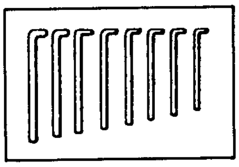
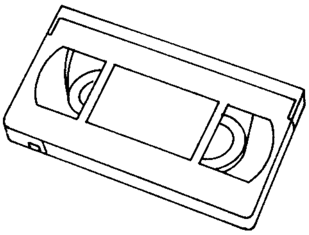
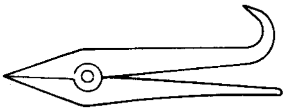
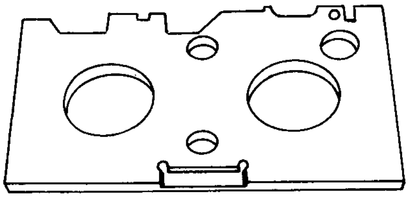
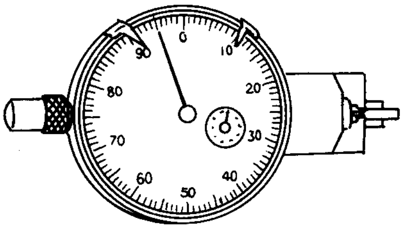
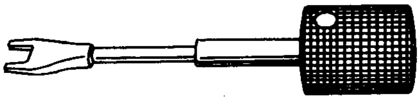
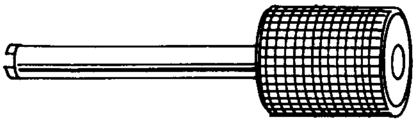
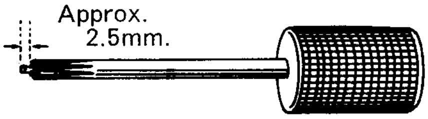
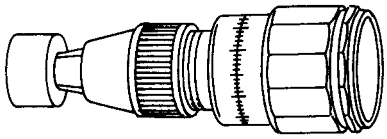
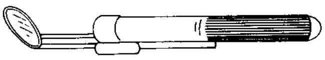
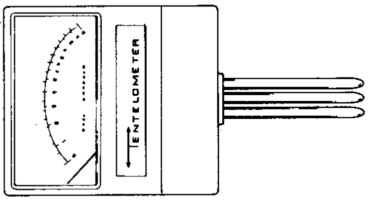
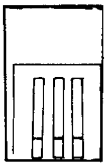
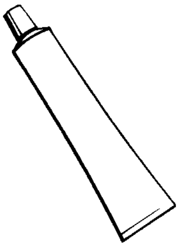

Tension Arm Unit
Band Release Arm
Tension Band

Fig. R9

(5) Replace a new Tension Band by Proceeding reverse steps shown above.

2-3. MECHANICAL ADJUSTMENT PROCEDURES

1. SERVICING FIXTURES & TOOLS

VFK0326 Hex Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3mm) 	VFJ8125H3F VHS Alignment Tape 	VFK0335 Retaining Ring Remover (3mm/4mm) 
VFK0191 Post Adjustment Plate 	VFK0190 Reel Table Height Gauge 	VFK0328 H–Position Adj. Fixture 
VFK0329 Post Adjustment Screwdriver 	VFK0157 Fine Adjustment Screwdriver  Grind the top portion approximately 2.5mm	VFK0133 Dial Torque Gauge VFK0134 Adaptor for VFK0133 VFK0180 (Plastic Clamper Only) 
VFK0343 Check Light 	VFK0132 Back Tension Meter (TZ–H7–UM) (Tentelometer, Made in U.S.A.) 	VFK27 Head Cleaning Stick 
MOR265 Morlytone Grease 	High Quality Machine Oil <Purchase Locally> (Reel Shaft, Capstan Shaft etc.) Cleaning Liquid (Freon TF., Alchol) <Purchase Locally> (Tape Transport Rubber Parts etc.)	

2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

(1). Position the video head to clean and hold the upper cylinder to keep it from turning while cleaning.
(2). Gently rub the video head in direction of tape travel whith Head Cleaning Stick.
(3). Repeat for the other three video heads.

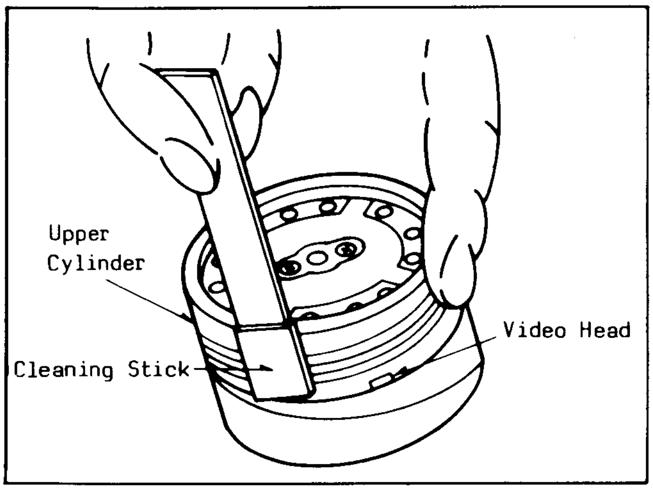


Fig. U1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to heads.
If contamination is not easily removed, continued gentle wiping will usually remove the substance.

3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

3-1. ADJUSTMENT FLOW CHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the tape guide post P1 only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE UPPER CYLINDER OR CYLINDER UNIT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

* **Note:**
Do not change the height of the P1 and P4 posts and position of the A/C head.

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

AFTER REINSTALLING THE A/C HEAD.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

* **Note:**
Do not change the height of P4 post.

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH.

3-2-8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the P4 post only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

* **Note:**
Adjust the P4 post only.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

* **Note:**
Do not readjust any other post.

3-2. ADJUSTMENT PROCEDURES

3–2–1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS (P1, P2, P3 AND P4)

* Equipment Required:
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Nut Driver (Purchase locally)
Post Adjustment Screwdriver..............VFK0329

1. Remove the cassette compartment from the mechanical chassis.
2. Place the Post Adjustment Plate over the reel tables. (Fig. M1)
Confirm that the Post Adjustment Plate is firmly seated.

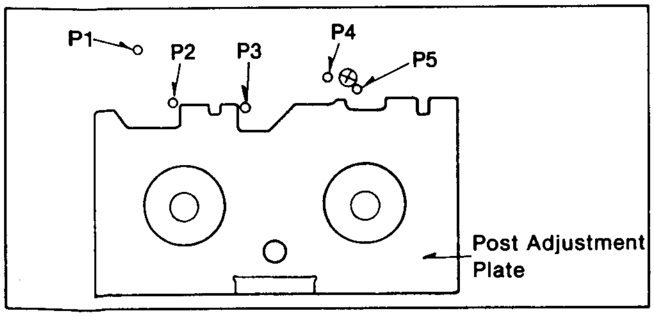


Fig. M1

3. Remove the post cap on post P4.
4. Lower all 4 tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
Use the post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower Posts P1, P4 and P5.
5. Place the Reel Table Height Gauge on the Post Adjustment Plate and lower the scraper so that it touches the plate. (Fig. M2)

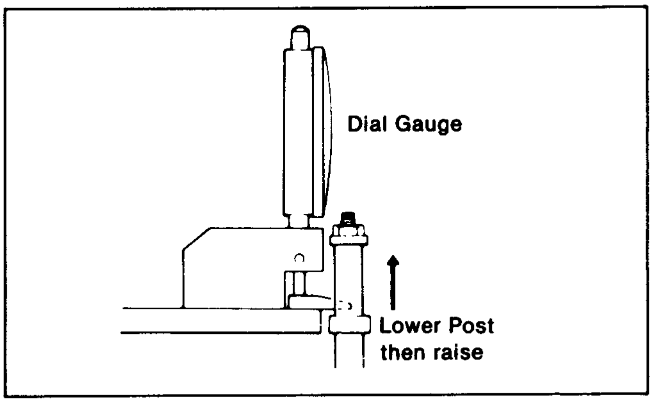


Fig. M2

6. Place the side of the scraper against the each post as shown in Figure M3, set the gauge to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper. (Fig. M3)

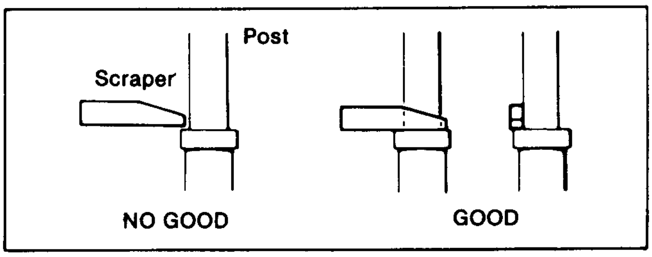


Fig. M3

3–2–2. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

* Note:
1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1, P4 and P5 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capatan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only the one which has been replaced.

* Equipment Required
Post Adjustment Screwdriver..............VFK0329
Check Light..............................VFK0343
Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
   Playback the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts by using the check light. (Fig. M4 and Fig. M5)

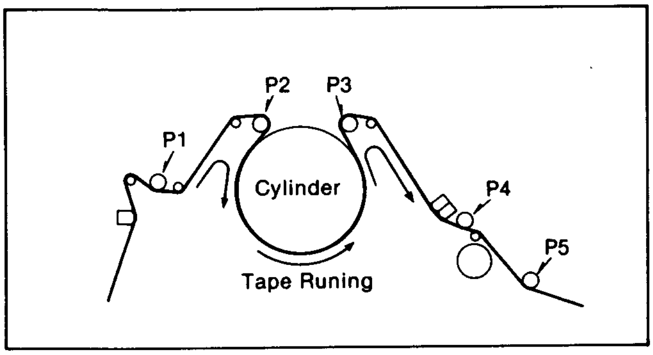


Fig. M4 Tape Transport Posts

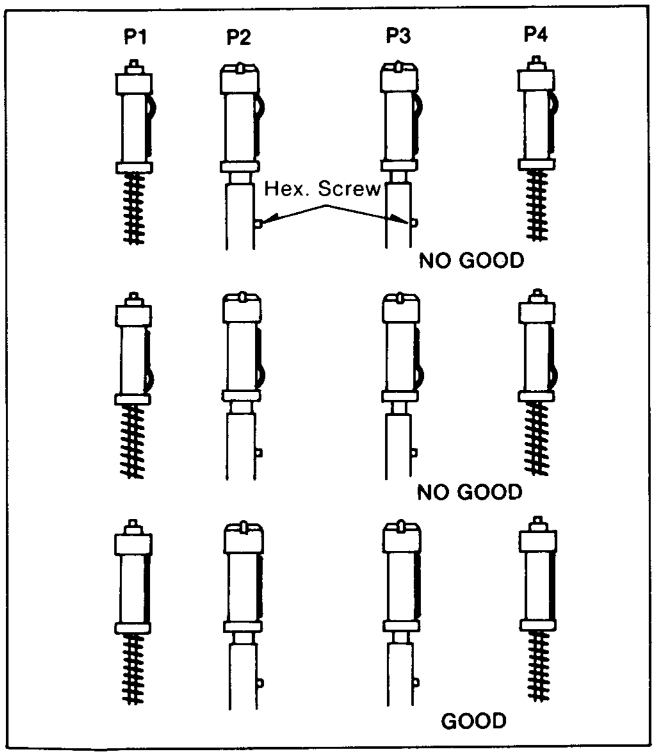


Fig. M5 Tape Guide Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (Posts P2 and P3) or the nut driver (Posts P1 and P4). (Fig. M4 and M5)
3. After adjusting the P4 post, adjustment of the pull-out post (P5) is required.
   (Refer to "ADJUTMENT OF THE PULL-OUT POST HEIGHT".)
4. If the tape curling cannot be corrected by adjusting the tape guide posts, then adjustment of the A/C head tilt may be needed.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT

* Notes:
1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull-out post is based on the height of post P4.

* Tools and Equipment Required:
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Check Light..............................VFK0343
Nut Driver (Purchase locally)

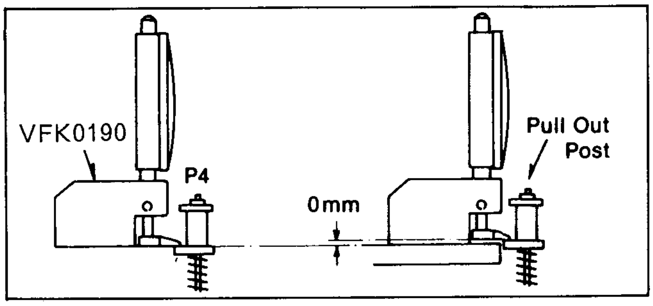


Fig. M6

1. Remove the cassette compartment by unscrewing 4 screws. Unit.
2. Place the Post Adjustment plate over the reel tables.
3. Place the Reel Table Height Gauge on the tape guide post P4, lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0"). (Fig. M6)
4. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in Fig. M7 .
5. Slowly turn the nut on the post counterclockwise until the gauge reads 0mm. (Fig. M6)
6. Confirm there is no tape curling at P4 post during reverse mode by using the check light.
   If tape curling occurs, back to step 8.

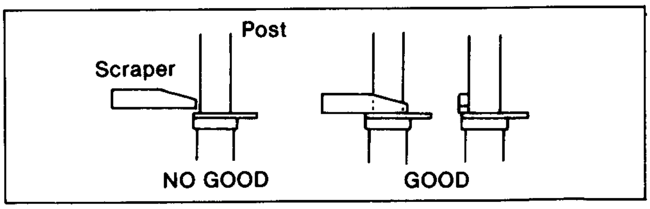


Fig. M7 Post Adjustment

3-2-4. CONFIRMATION OF THE A/C HEAD TILT

* Note:
This procedure should be performed after replacing the A/C head and pressure roller, and adjusting the height of the tape guide post (P4).
(Refer to "COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS".)

* Tools and Eqipment Required:
Hex. Wrench Set..........................VFK0326
Nut Driver (purchase locally)

1. Play back the begnning portion of NV–E240 blank cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or frilling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the Hex screw located behind the A/C head. (Fig. M8)

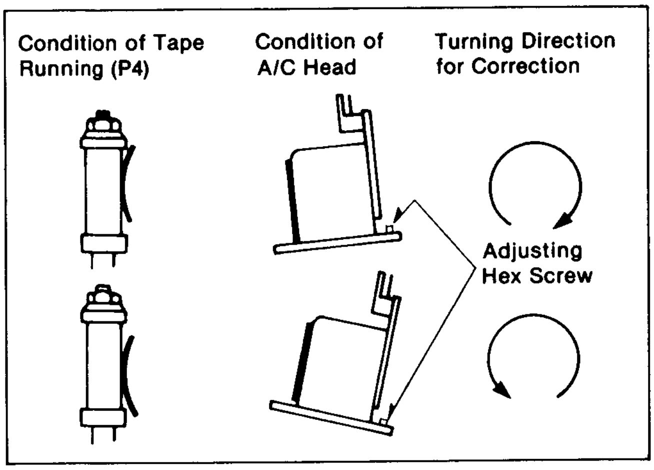

Condition of Tape Running (P4)
Condition of A/C Head
Turning Direction for Correction
Adjusting Hex Screw

Fig. M8

2. If the tape curling cannot be acomplished by adjusting the A/C head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

* Notes:

1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C head tilt, the A/C head height adjustment is required.

3–2–5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY)

* Note:

Before playing back the alignment tape, play back a normal cassette tape and confirm correct transport.
(Refer to "CONFIRMATION OF THE TAPE TRANSPRT".)

* Tools and Equipment Required:
Post Adjustment Screwdriver..............VFK0329
Alignment Tape...........................VFJ8125H3F

1. Connect the scope to the output of the Head Amp (TP3001) on the Main C.B.A. and TP2001 on the same C.B.A. to EX +– Trigger of the scope.
2. Play back the monoscope portion of the alignment tape VFJ8125H3F.
3. Turn the Tracking Control VR and adjust for maximum RF envelope.
4. If the RF envelope appears like example "A" or "B" in Fig. M9, then adjustment of tape guide post (P2: Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown "C" in Fig. M9.(See Fig. M12 also)

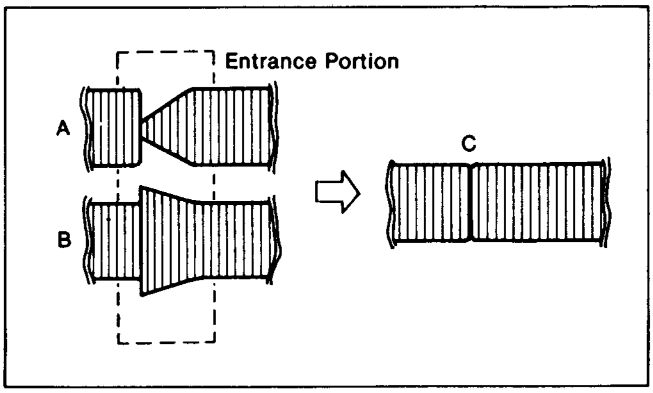


Fig. M9

6. If the RF envelope appears like example "D" or "E" in Fig. M10,then adjustment of the tape guide post (P3: Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Fig. M10.

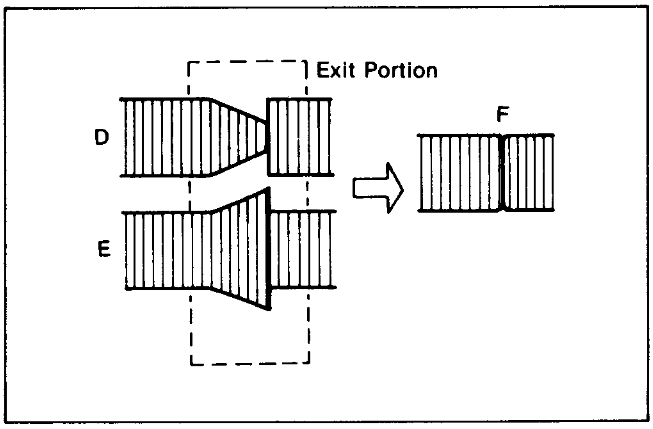


Fig. M10

8. Turn the Tracking VR from end to end.
The variation of RF envelope should be nearly parallel as shown in Figure M11.
9. Turn the Tracking VR and adjust for maximum RF envelope.
If the RF envelope does not meet these specs, V1/V 0.7, V2/V 0.8, then repeat stsps 1–9 of item 3–2–5. again. (Fig. M13)

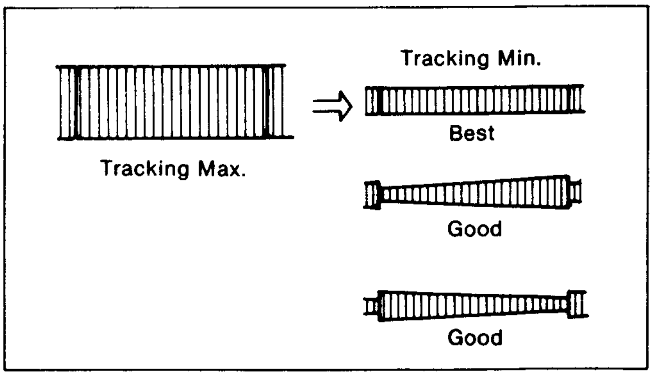


Fig. M11

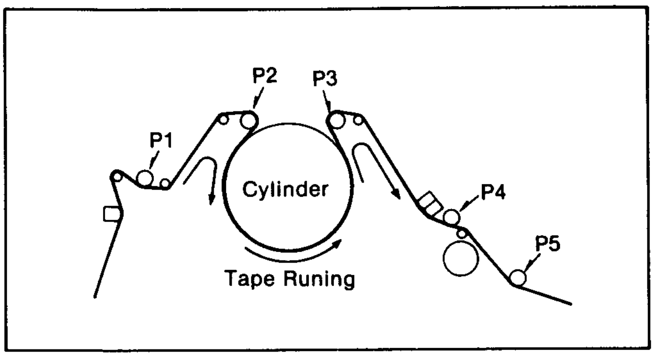


Fig. M12 Loading of post

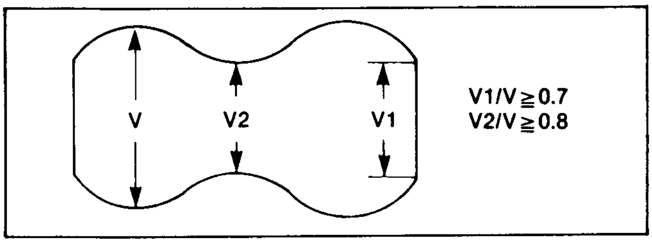


Fig. M13 Spec. of Envelope Figure

10. Turn the Tracking VR from end to end again and then back to the detent (Fix) position.
    At the detent position, the RF envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION". is necessary.
    (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT

* Note:
This procedure should be performed only when the A/C Head is replaced.

* Tools and Equipment Required:
Check Light........................VFK0343
Nut Driver (Purchase locally)

(1) Looking at the lower edge of the control head within the tape running, ensure that lower edge of the tape runs along 0.25mm far from lower edge of the control head. (litte bit up position from lower edge of control head.) If it doesn't, slightly turn the nut (A) in either direction to correct clockwise to lower the head and counterclockwise to raise it.

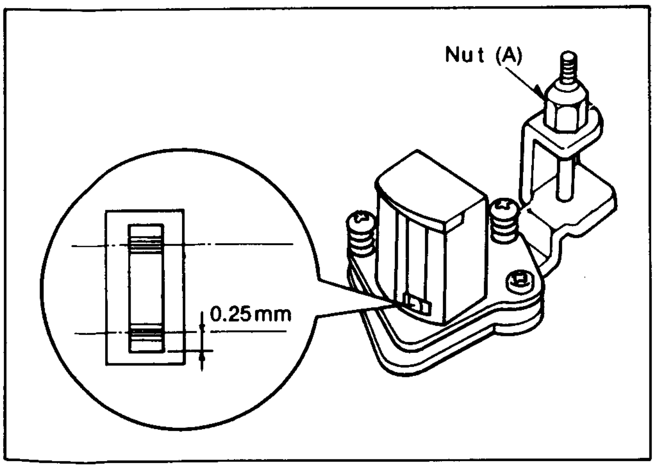


Fig. M14

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH

* Note:
This procedure should be performed only when the A/C Head is replaced and posts hight are readjusted.

* Tools and Equipment Required:
Nut Driver (Purchase locally)
Alignment Tape.................VFJ8125H3F

1. Connect the scope to the audio output. (TP4001)
2. Play back the 2nd portion (Normal Audio 6kHz) of the alignment tape, VFJ8125H3F.
3. Adjust the screw (B) so that the audio output level at TP4001 becomes maximum. (Fig. M15)

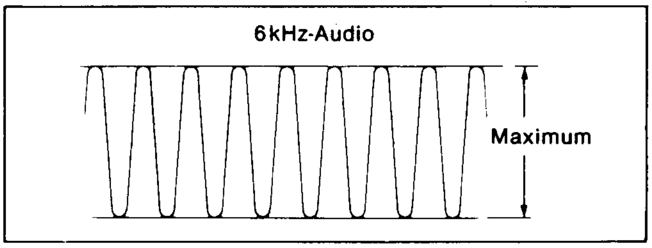


Fig. M15

4. Then adjust the nut (A) so that the audio output level (at TP4001) maximum.

3-2-8. ADJUSTMENT OF A/C HEAD HORIZONTAL POSITION

Note:
This procedure should be performed only when the A/C head is replaced and after performing the tape interchangeability adjustment .

* Tools and Equipment Required:
H. Position Adj. Fixture.................VFK0328
Alignment Tape.........................VFJ8125H3F

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and TP4001 on the Audio C.B.A. to Ext-trigger the scope.
3. Play back the Monoscope patern of the alignment tape (VFM8125H3F).
4. Adjust the adjust screw so that the RF envelope output level becomes maximum at the detent position (Fig. M16,M17).
5. Turn the Tracking VR from end to end and then back to the detent position.
   Confirm that the RF envelope output level is maximized at the detent position. (Fig. M11)

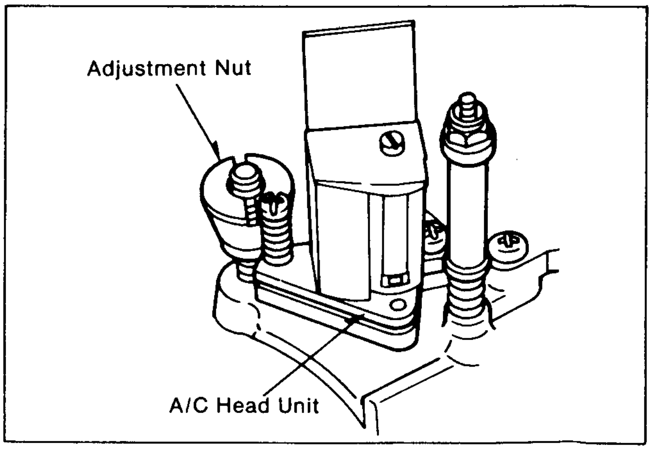


Fig. M16

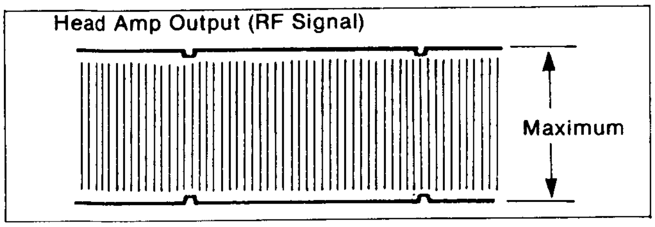

Head Amp Output (RF Signal)
Maximum

Fig. M17

4. OTHER ADJUSTMENT PROCEDURES

4-1. CONFIRMATION OF BRAKE TORQUE

* Equipment Required:
Dial Torque Gauge................VFK0133
Adaptor for Gauge................VFK0134
* Specification:————see spec table (Fig. M19)

(1) Remove the cassette compartment by unscrewing 4 screws.
(2) Attach the adaptor to the torque gauge and place the unit in STOP mode.
(3) Place the torque on the reel table. The weight of gauge should not rest on the reel table.

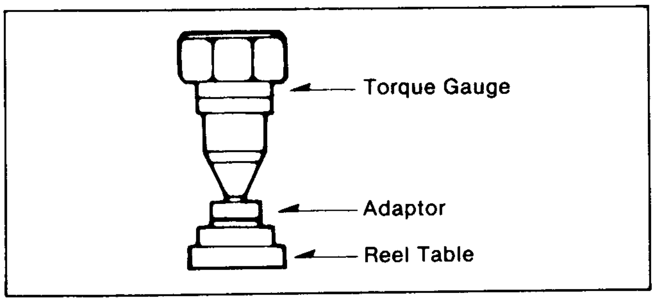
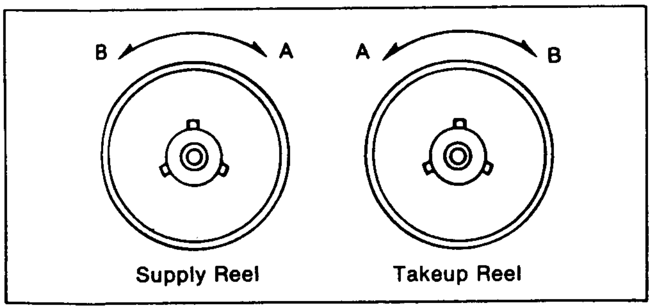

Torque Gauge
Adaptor
Reel Table

Fig. M18

(4) Turn torque gauge in either direction indicated in the Fig. M19, and read the gauge when the brake begins slipping.

Note:
If proper brake torque can not be optained, check the both take–up and supply clutch gear.


B
A
A
B
Supply Reel
Takeup Reel

	A	B
Takeup	28+–8g–cm	28+–8g–cm
Supply	28+–8g–cm	28+–8g–cm

Fig. M19

4-2. TENSION POST POSITION ADJUSTMENT

* Specification :—————2.4mm∼2.9mm

(1) Remove the Cassette Up unit by unscrewing 4 screws. (Refer to the disassembly procedures titled in Removal of the Cassette Up Unit).
Place the unit in Play mode by rotating Drive Gear (A) in clockwise shown below.

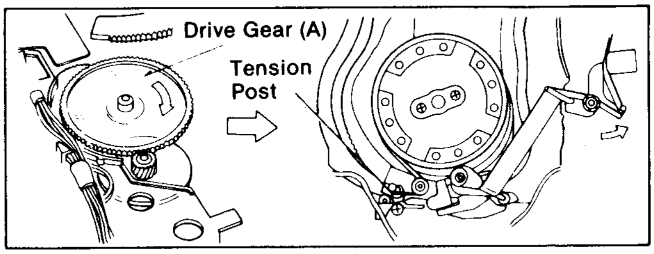

Drive Gear (A)
Tension Post

Fig. M20

Note:
In this case, make sure that the power is not applied.

(2) Loosen the screw (A) a little bit and adjust the Tension Post adjustment plate so that the "Distance (A)" shown below becomes just meet in the specification (2.4m∼2.9mm).
(3) Tighten the screw (A) to fix it.

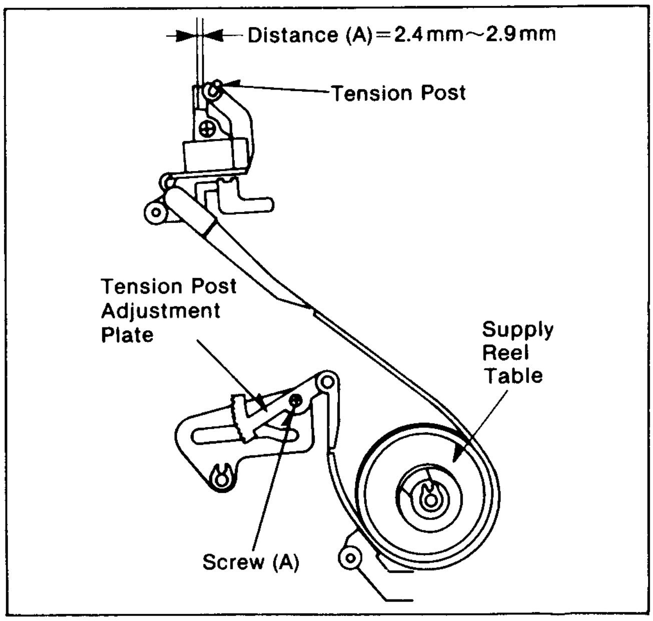

Distance (A)=2.4mm∼2.9mm
Tension Post
Tension Post Adjustment Plate
Supply Reel Table
Screw (A)

Fig. M21

4-3. BACK TENSION ADJUSTMENT

* Equipment Required:
Back Tension Meter......................VFK0132
VHS Cassette Tape (120min.)
* Specificcation:——————————19∼23g

1. Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10∼20 seconds)

2. Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Figure M22.

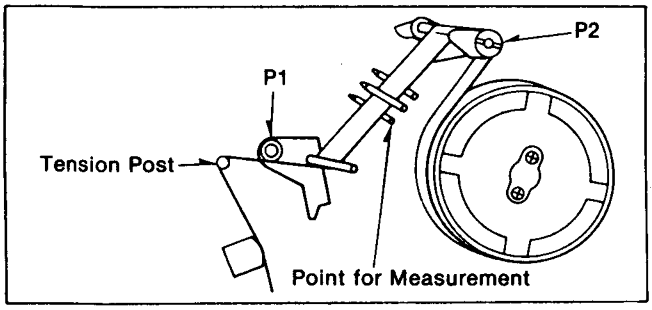


Fig. M22 **Measurement of Back Tension**

Note:

1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.
3. If it is out of specification, change the spring notch as shown in Figure M23

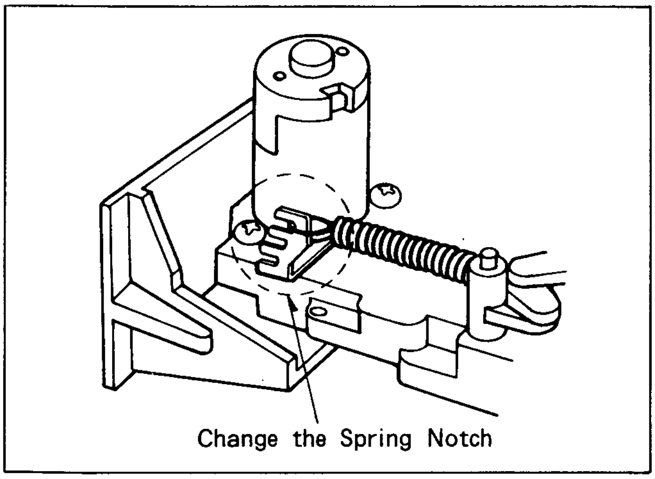


Fig. M23

4-4. REEL TABLES HEIGHT ADJUSTMENT

* Equipment Required:
Post Adjustment Plate............VFK0191
Reel Table Height Gauge..........VFK0190
* Specification————————0~−0.15mm

Note:
Cut−out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

1. Place the post adjustment plate on the reels, and put the Gauge on the plate. Set the gauge to zero "0" with the foot scraper of the gauge touching the cut−out portion of the plate.

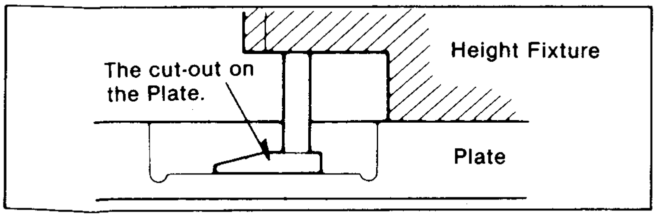


Fig.M24

2. Then measure the height of reel table and confirm the difference just performed in former step as shown below. Do the same way for the other reel table.

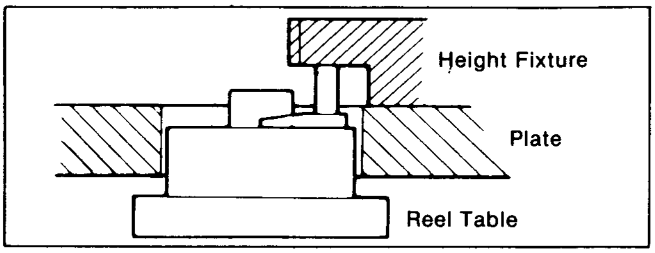


Fig. M25

3. If a height difference in readings between the cut−out portion of plate and reel tables is not 0~−0.15mm (higher or lower), adjust the height of the reel to obtain specified height.
4. For adjustment add or reduce a washer.

4-5. ADJUSTMENT OF FG HEAD GAP

* Specification:————————0.17~0.18mm

(1). Slightly loosen the 2 screws.
(2). Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor. (The thickness of the cover page is approx 0.17mm)
(3). After adjustment, tighten 2 screws.

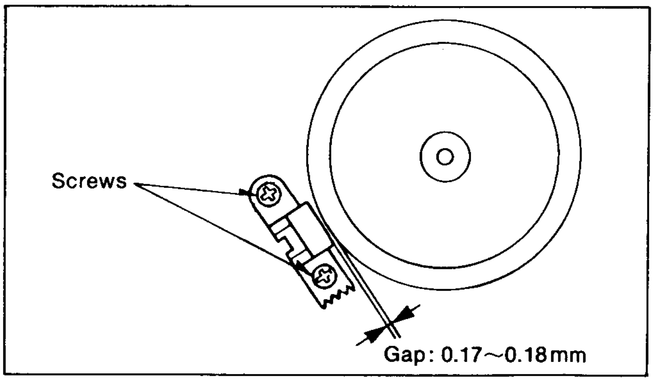


Fig. M26

Note:
Do not touch the surface of rotor and keep any magnetizable material away.

4-6. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are fixed in properly, the unit will be unloaded or compulsorily stopped.
And it will result being damaged at any mechanical or electrical parts.

4-6-1. ASSEMBLY PROCEDURES OF LOADING RINGS AND LOADING GEARS

(1). Install a Loading-Ring T (1) unit and a Loading Gear (B) so that both triangle marks meet each other as shown below.

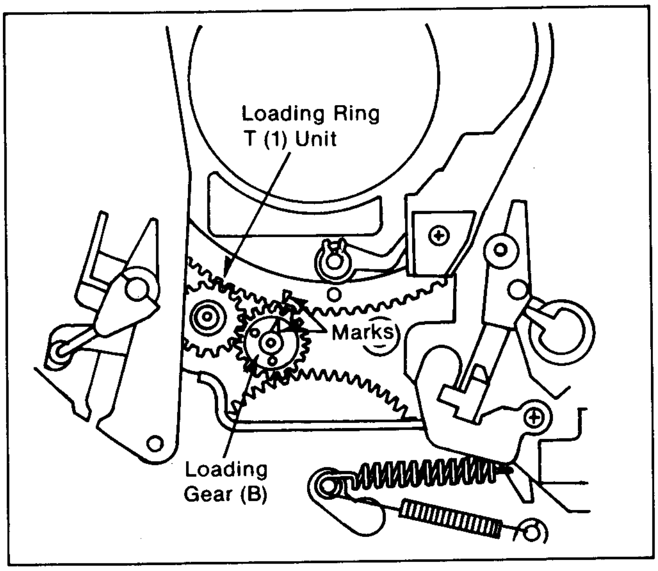

Loading Ring
T (1) Unit
Marks
Loading
Gear (B)

Fig. M27

(2). Install a Loading Gear (A) and next fix a Loading Ring S (1) Unit so that the holes of Loading-Ring S(1) Unit and T(1) Unit meet each other as shown below.

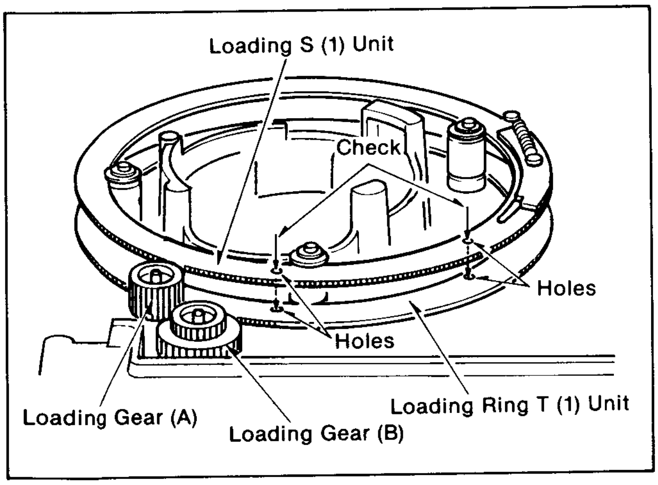

Loading S (1) Unit
Check
Holes
Holes
Loading Gear (A)
Loading Gear (B)
Loading Ring T (1) Unit

Fig. M28

Note:
Pay attention that the washers are remaining under the loading gears or any other parts.

4-6-2. ASSEMBLY PROCEDURES OF TAKE-UP LOADING GUIDE AND TAKE-UP LOADING POSTS UNIT

(1). Install Loading Guide T Unit and Take-up Post Stopper.
In that time, the small projection of a Loading Link T Unit must be inserted into a gap of Loading Guide T Unit.

(2). Fix a Take-up side Loading Post Unit holding the small projection of the Loading Link T Unit and install a T Shaft Holder Unit.

4-6-3. ASSEMBLY PROCEDURES OF SUPPLY LOADING GUIDES AND SUPPLY LOADING POST UNIT

(1). Install 2 Supply Loading Guides screwing 4 screws.

(2). Slide a Supply Loading Post Unit into a gap between the Loading Guide S1 and S2 hooking a Connection Rod to a Connection Tie Unit as shown below.

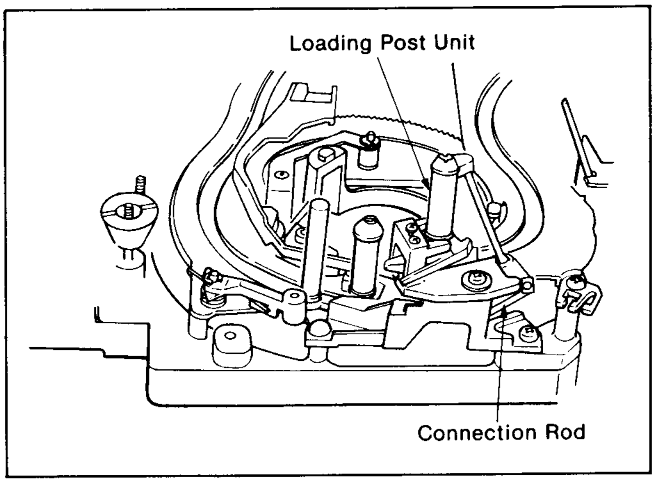

Loading Post Unit
Connection Rod

Fig. M29

(3). Set the Supply Loading Post Unit into unloading position by turning a intermediate pully gear as shown below.

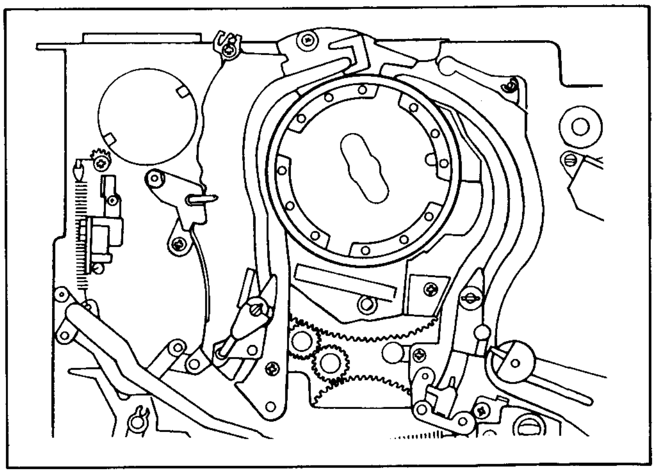


Fig. M30

(4). Install a V Stopper Base and a Supply Post Stopper.

4–6–4. ASSEMBLY PROCEDURES OF MAIN ROD.

(1). Place a Main Rod inserting 3 Thrust Washers and then insert 3 washers.
After that, fix them using 2 retaining rings as shown below.

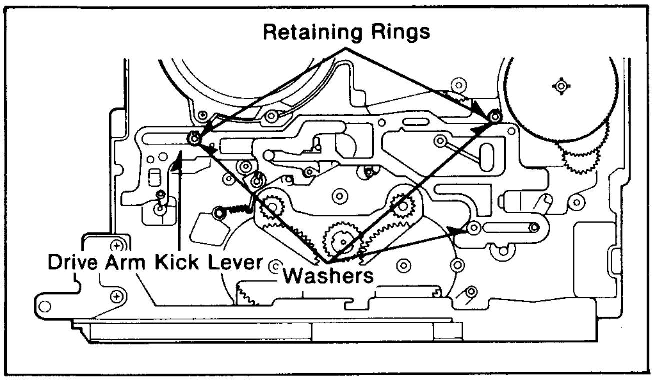


Fig. M31

(2). Install a Drive Arm Kick Lever hooking a Drive Arm kick Lever Spring and fix it using ring.

4–6–5. ASSEMBLY PROCEDURES OF CAM GEAR AND SECTOR

(1). Make sure that the hole on a Main Rod just should coincide with the hole on chassis as shown below and install a Cam Gear should coincide with he hole between a Cam Gear and the chassis. Then install a retaining ring.

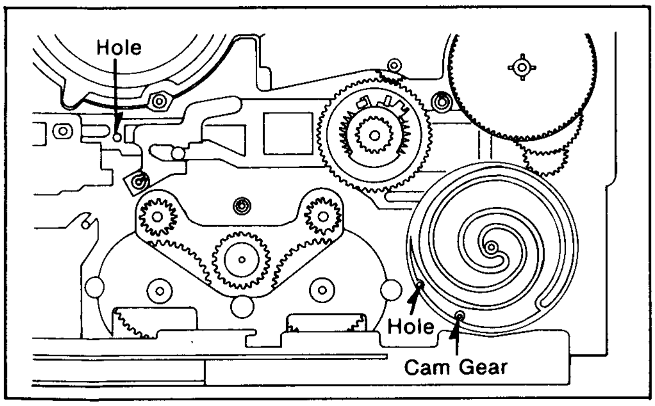


Fig. M32

(2). Install a Loading Gear (C) keeping the relation as shown below.

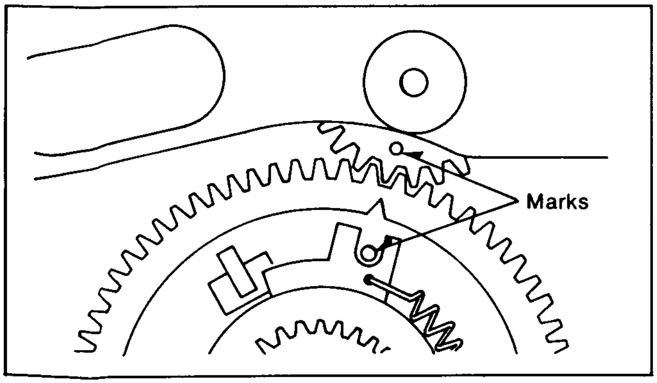


Fig. M33

(3). Install a Sector Gear as shown below.

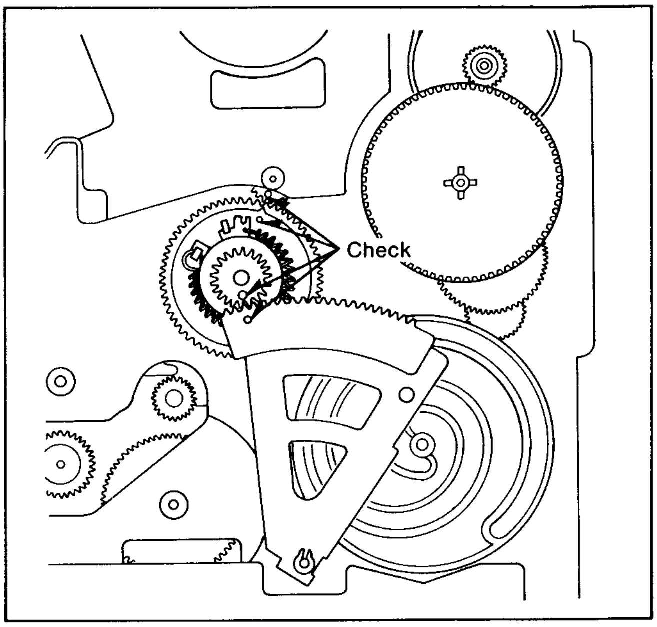


Fig. M34

(4). Fix a SG Limiter by 2 retaining rings.

4–6–6. ASSEMBLY PROCEDURES OF MODE SWITCH

(1). Perform this procedures after confirming the complete setting of mechanical parts.
First of all, confirm that the hole on a Main Rod is meeting with a hole on a chassis.

(2). Move the moving contact of a Mode Select Switch into Stop position as shown below.

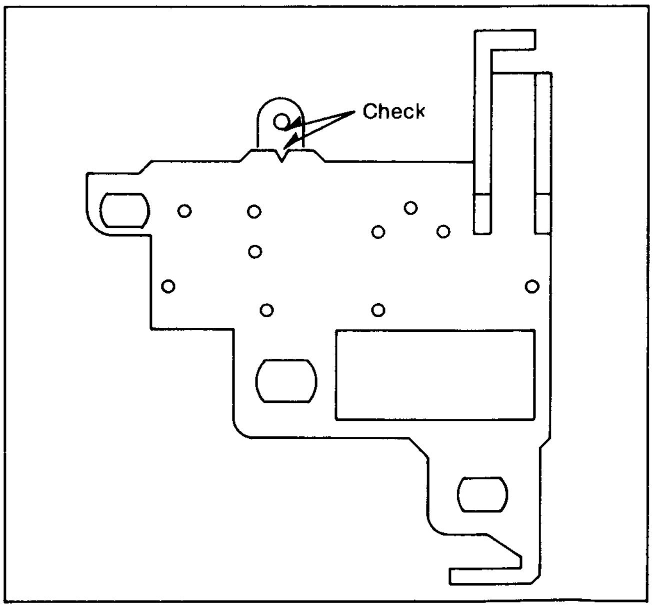


Fig. M35

(3). Install the Mode Select Switch keeping these relation written in item (1) and (2) by screwing 2 screw.

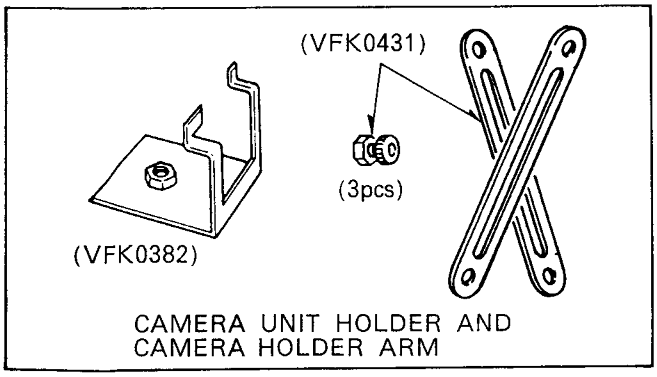
2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section of S-VHS Movie.

1. Oscilloscope
   Dual Trace, 25MHz, 2mV/DIV,
   10:1 Probe
   1:1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 footcandles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   *Logarithmic Gray Scale Chart
   (Part No.:YWV2310RB99)
   *Colour Chip Chart
   (Part No.:YWV2100RB98)
   *Ball Chart
   (Part No.:YWV2100RB03)
   *Huting Chart
   (Included in this Service Manual)
   *White Chart (Card)
   (The white paper is available as a white chart)
   *J Chart
   (Part No.:YWV2100RB3)
   *B/W Chart
   (Incloded in this Service Manual)
   *Gray-White Chart
   (Included in this Service Manual)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No.:VFK0382)
12. Camera Holder Arm
    (Part No.:VFK0431)


(VFK0431)
(3pcs)
(VFK0382)

CAMERA UNIT HOLDER AND CAMERA HOLDER ARM

Fig. C1

13. Colour temperature conversion filter
    *C12 Filter(Part NO.:VFK0374)
    *C2 Filter(Part NO.:VFK0375)
14. Camera Extension Cables
    (Part No.:VFK0380, VFK0430)

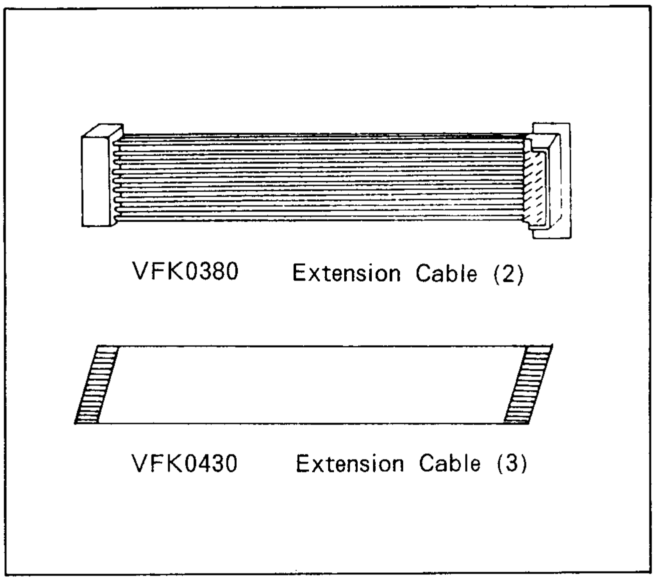

VFK0380 Extension Cable (2)
VFK0430 Extension Cable (3)

Fig. C2

PREPARATION

1) Remove the Side Case (L) and Side Case (R) from the Unit.
   (Refer to the Disassembly Section.)
2) Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3) Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4) Remove the Flexible Cable between FP301 and P3003
   And re-connect the Camera Extension Cable (3) (VFK0430) to these connectors.
5) Connect the Camera Operation C.B.A. by connecting P001.
6) Connect the 1 pin connector which connect the reference voltage between P301-4 and R006(Iris VR side).

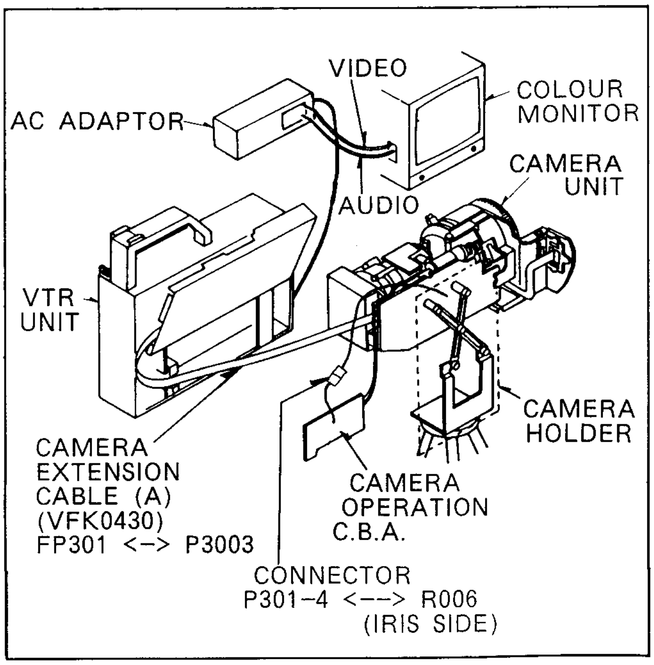

VIDEO
COLOUR MONITOR
AC ADAPTOR
CAMERA UNIT
AUDIO
VTR UNIT
CAMERA HOLDER
CAMERA EXTENSION CABLE (A) (VFK0430) FP301 <-> P3003
CAMERA OPERATION C.B.A.
CONNECTOR P301-4 <--> R006 (IRIS SIDE)

Fig. C3

Note:

1. Do not forget to connect P001 on Camera Operation C.B.A. and small connector (between P301−4 and R006: Iris VR side). If these connectors are not connected , camera does not work correctly.
2. Set the RED/BLUE Blance VR to centre fix position.
3. Set the IRIS VR to centre Fix position.
4. Set the White Balance Switch to INDOOR position during adjustment procedures.
5. Service work for the Camera Unit must be performed in a dust−free location to maintain lens cleanliness.
6. To achieve the best adjustment results, warm up the camera before adjusting.
7. FOR TRIGGER (Refer to Fig. C4−1)
   To trigger the scope, solder jumper wires to the following pins that are used as test points. (H−Rate−Pin12 of B302 and V−Rate−Pin13 of B302). Remove the jumper wires after completing the adjustment Procedure (s).
8. If you use the reflection chart, ensure the colour temperature of the light source used is 3200 degrees K.

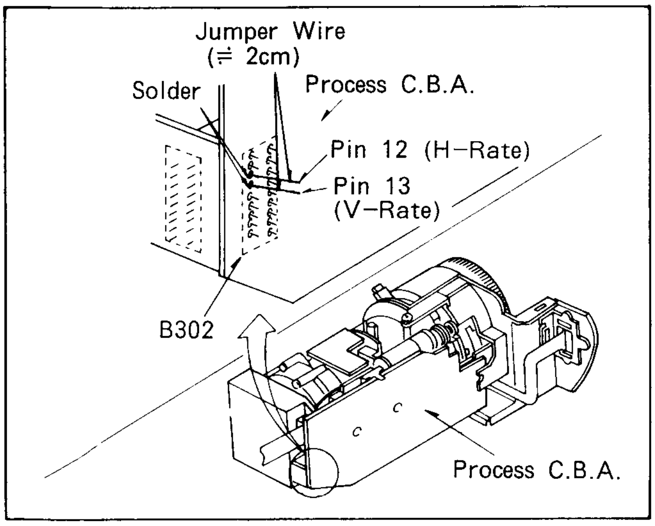


Fig. C4−1

7). HOW TO USE CAMERA HOLDER ARM (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 and it can be used with VFK0432 for camera adjustment or checking.

(A)	--- VFK0432	Holder Spacer (2pcs.)
(B)	--- VFK0431	Camera Holder Arm
(C)	--- XSN26+18	Screw (2pcs.)
(D)	--- VFK0382	Camera Holder

(1) Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig. C4−2.
(2) Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. C4−3.
(3) Tightn the screws (C) with the Holder Spacers (A) as shown in Fig. C4−2.

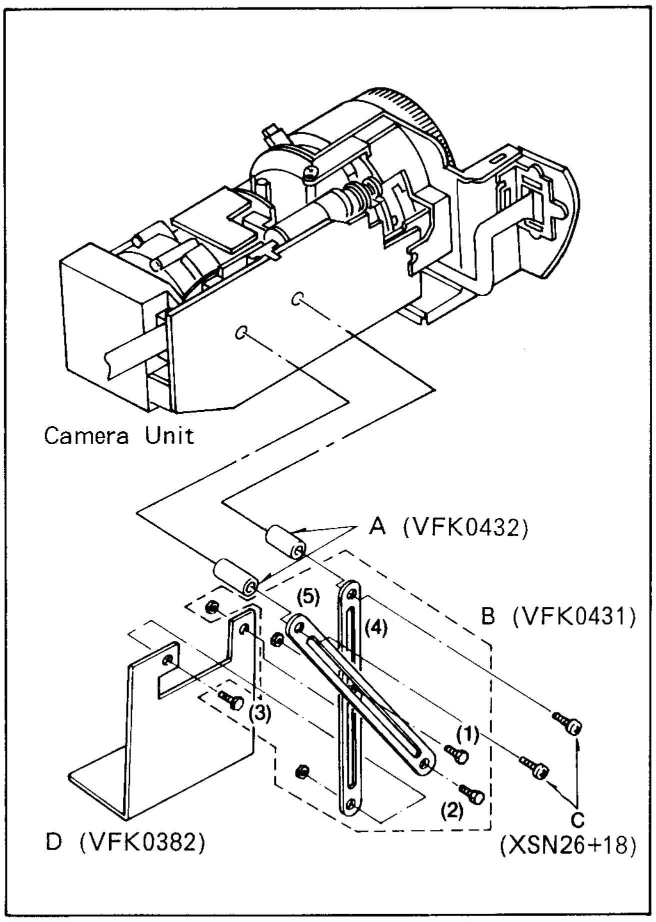


Fig. C4−2

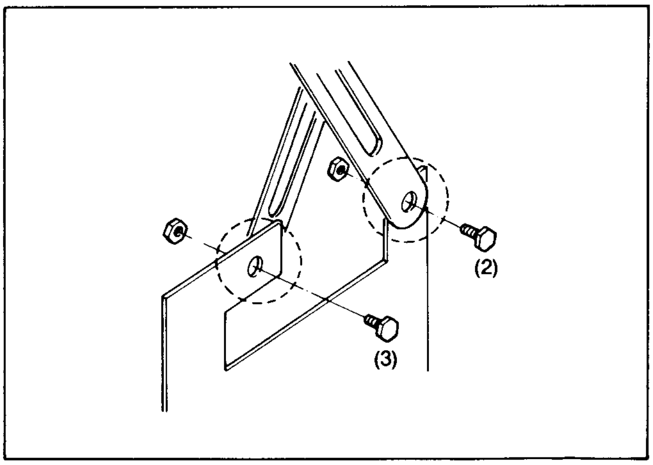


Fig. C4−3

8). When servicing the Camera Section, connection of 18 pin Extension Cable (2) (VFK0380) is necessary as shown in Fig. C4−4.

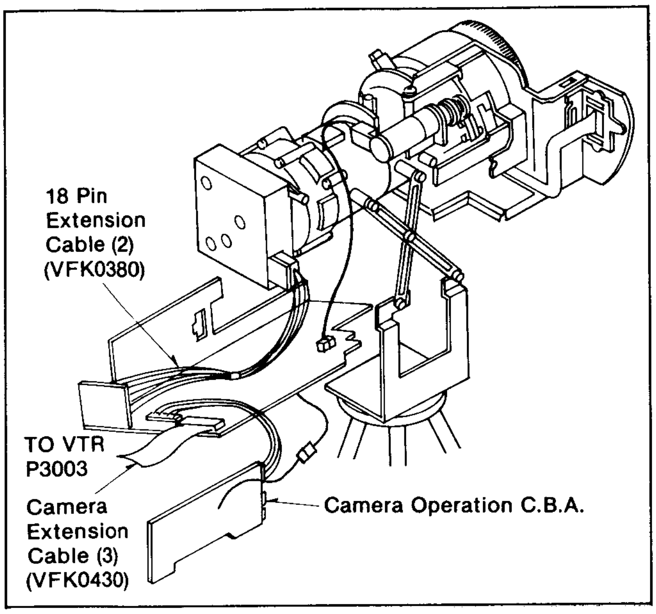
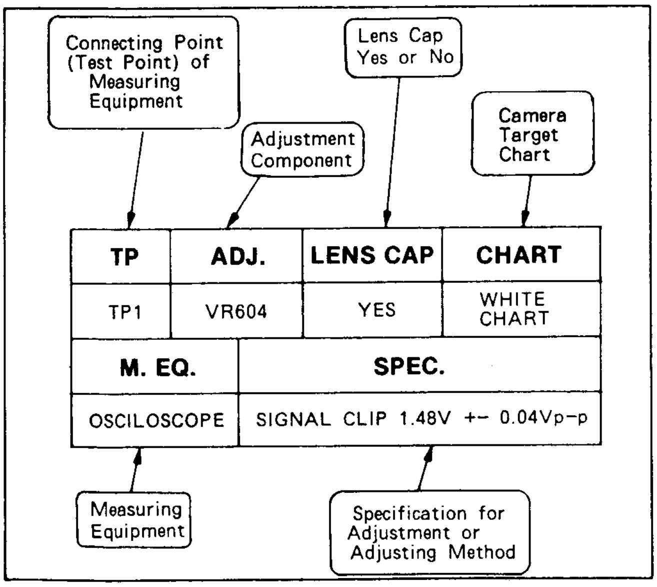

18 Pin
Extension
Cable (2)
(VFK0380)
TO VTR
P3003
Camera
Extension
Cable (3)
(VFK0430)
Camera Operation C.B.A.

Fig. C4-4

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point
(Test Point) of
Measuring
Equipment
Lens Cap
Yes or No
Adjustment
Component
Camera
Target
Chart
Measuring
Equipment
Specification for
Adjustment or
Adjusting Method

TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILOSCOPE	SIGNAL CLIP 1.48V +− 0.04Vp−p

Fig. C5-1

CCD DRIVE SECTIONN

1. BACK FOCUS ADJUSTMENT
2. PLL FREQUENCY ADJUSTMENT
3. OR BIAS ADJUSTMENT
4. V-SUB ADJUSTMENT
5. CCD OUTPUT ADJUSTMENT

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT
7. IRIS SPEED ADJUSTMENT
8. ALC ADJUSTMENT
9. AGC ADJUSTMENT
10. YH LEVEL ADJUSTMENT
11. CARRIER BALANCE AND BLACK LEVEL ADJUSTMENT
12. INDOOR WHITE BALANCE ADJUSTMENT
13. OUTDOOR WHITE BALANCE ADJUSTMENT
14. AWB OFFSET ADJUSTMENT
15. COLOUR PHASE AND R−Y/B−Y GAIN ADJUSTMENT
16. HIGH INTENSITY SUPPRESS ADJUSTMENT
17. LOW LIGHT INDICATION ADJUSTMENT
18. AWT MODE ADJUSTMENT

18−1. AWT MODE (OFFSET) ADJUSTMENT

18−2. AWT MODE (GAIN) ADJUSTMENT

18−3. HIGH COLOUR TEMPERATURE ADJUSTMENT

AUTO FOCUS SECTION

19. AF GATE ADJUSTMENT
20. BIMOLF GAIN CONTROL ADJUSTMENT
21. AF AMP BIAS GAIN ADJUSTMENT
22. AF VH FREQUENCY ADJUSTMENT

Fig. C5-2

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT

(1) Aim the Camera at the Hunting Chart in 3m distance and zoom all the way in (Fully tele position.)
(2) Focus the lens on the object.
(3) Adjust the relay lens adjustment point as shown in Fig. C6.

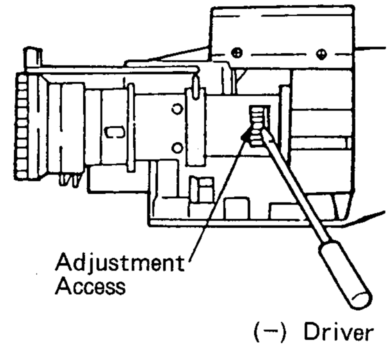


Fig. C6

(4) Zoom all the way back and adjust the back focus pitch so that the sharpest focus is obtained.
(5) Repeat the procedure as follows, zoom in, focus, zoom out and adjust until the best focus is obtained over the entire Zoom range.

2. PLL FREQUENCY ADJUSTMENT

(1) Remove the Sensor Shield Case by removing its 4 Screws.

TP	ADJ.	LENS CAP	CHART
PIN 10 OF B201	C206		
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		12.875MHz +− 15Hz	

Note:
B201, C206 : Sensor C.B.A.

3. OR BIAS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR203	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		WAVEFORM "A" IS MAXIMIZED	

Note:
VR203,VR201,TP201:ON SENSOR C.B.A.
TP10,TP11:ON PROCESS C.B.A.

(1) Set the zoom ring to fully TELE position. Aim the camera at J chart and connect the jumper wire between TP10 and TP11.
(2) Pre-adjust VR201 (V-SUB VR) so that blooming or smear (vertical line) is appered on TV screen.
(3) Connect the oscilloscope to TP201.
(4) Adjust the VR203 so that level "A" is maximized and any signal does not apper at point "B".

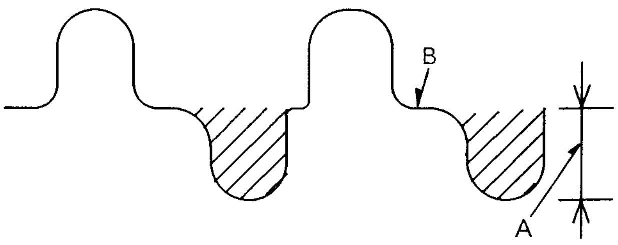


Fig.C7

4. V-SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP
M. EQ.		**SPEC.**	
MONITOR TV		NO BLOOMING	

(1) Zoom allthe way in (Fully teie position) and aim the camera at the Halogen Lamp (3200 degrees K) as shown in Fig. C8-1.

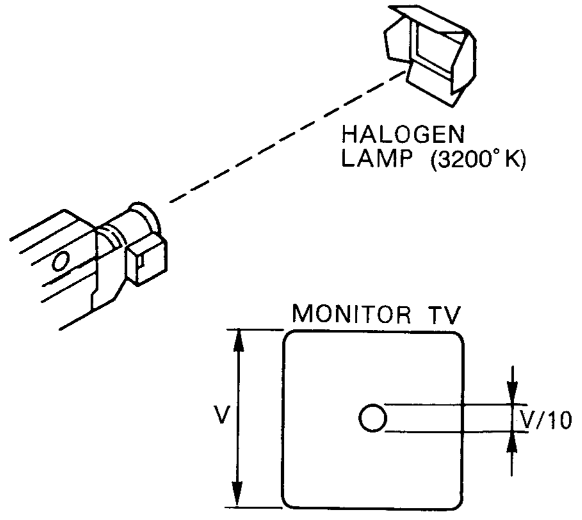


Fig. C8-1

(2) Set the High Speed Shutter SW to"OFF" portion.
(3) Turn IRIS volume to fully open.
(4) Adjust the Blooming Control (VR201) so that the monitored pictue does not contain the Blooming.

(5) High Speed Shutter "ON" and "OFF" both mode, confirm that the monitored picture does not contain the Blooming even if the camera moves as shown in Fig. C8-2.

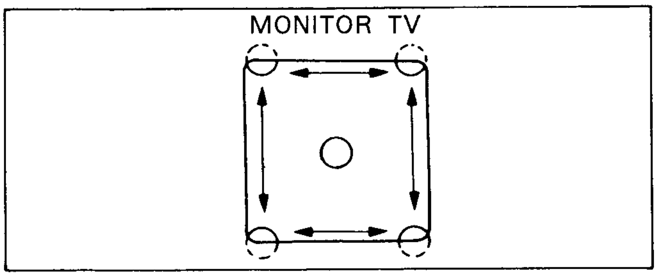


Fig. C8-2

5. CCD OUTPUT ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR202	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		200mV +- 10mV	

Note1:
TP201, VR202 : Sensor C.B.A.

Note2:
Prior to the above adjustment, adjust the iris control Volume so that the level at TP1 is 300 +- 10mV by observing waveform on the oscilloscope.

(1) Aim the cavera at the J chart and focus the lens on the object.
(2) Connect the oscilloscope to TP201.
(3) Adjust VR202 so that the signal level is 200 +- 10mVp-p as shown in Fig. C9.

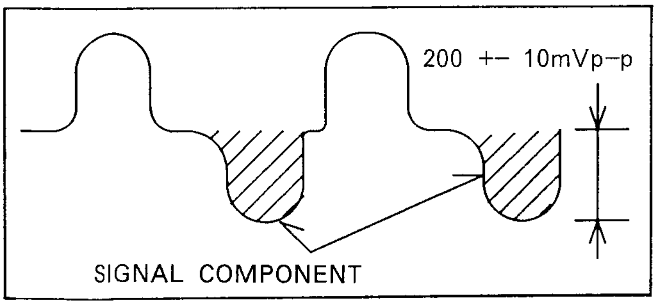


Fig. C9

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR305	YES	
M. EQ.		**SPEC.**	
OSCILLOSCOPE		SIGNAL LEVEL EQUALS THE BLANKING (BLNK) LEVEL.	

Note:
TP2, VR305 : Process C.B.A.

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Pedestal Level Control (VR305) so that the signal level equals the BLK level as shown in Fig. C10.

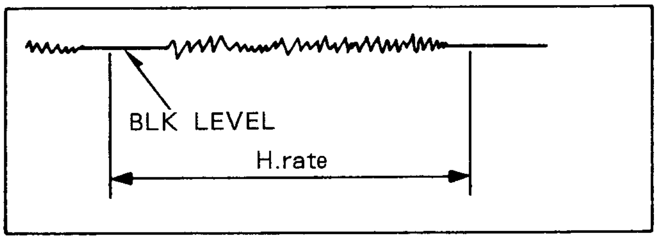


Fig. C10

7. IRIS SPEED ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP13	VR326	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		JUST LOW LEVEL (LESS THAN 0.5V)	

Note:
TP13,TP14,VR326: Process C.B.A.

(1) Aim the camera at the Gray scale chart.
(2) Set the Iris VR for centre Fix position .
(3) Connect the resistor (56 kohm) between TP14 and GND.
(4) Connect the oscilloscope to TP13.
(5) Adjust the VR326 so that DC level become low level (less than 0.5V) where the just before votage change from low level to high level.
(6) Remove the resistor (56kohm) from TP14 and GND.
(7) Confirm that voltage at TP13 is high (more than 3V) when Iris VR is turned to "CLOSE" side.
Confirm that voltage at TP13 is low (less than 0.5V) when Iris VR is turned to "OPEN" side.

8. ALC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP1	VR301	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +- 0.02Vp-p	

Note:
TP1, VR301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP1 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Fig. C11.
(4) Adjust the Auto Iris Control (VR301) so that the signal level is 0.30V +- 0.02Vp-p.

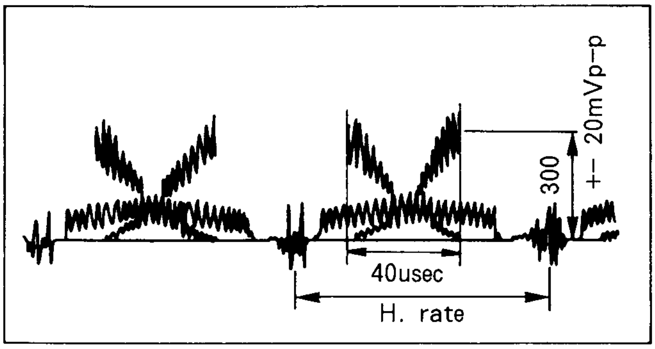


Fig. C11

9. AGC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR304	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +- 0.02Vp-p	

Note1:
TP2, VR304 : Process C.B.A.

Note2:
The Gain SW should be set to "S.T.D." position

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Fig. C12.
(4) Adjust the AGC Control (VR304) so that the signal level is 0.30V +- 0.02Vp-p.

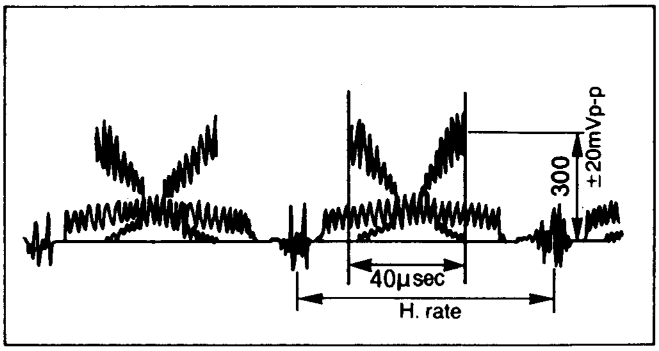


Fig. C12

10. YH LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
PIN 7 OF FP 301	VR302	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	B/A = 2.33 +- 0.15		

Note:
VR302, FP301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to Pin7 of FP301. (Refe to Fig. C14)
(3) Adjust the YH Level Control (VR302) so that the signal level "B/A" is 2.33 +- 0.15 as shown in Fig. C13.
(4) Disconnect the jumper wire.

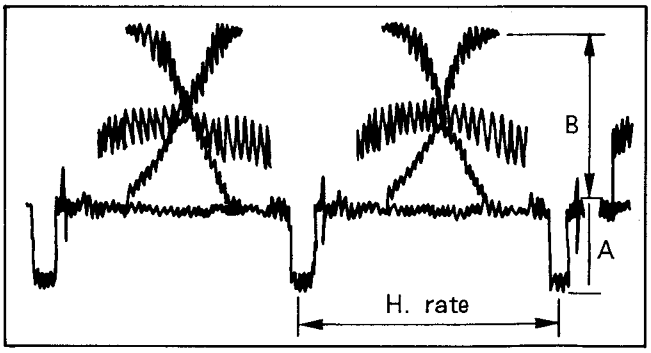


Fig. C13

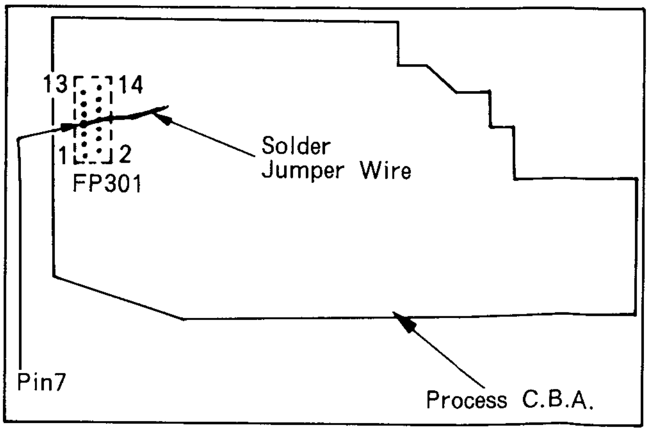


Fig. C14

11. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR308 VR318 VR319	YES	

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR308, VR319, VR318 : Process C.B.A.

WHITH VECTORSCOPE

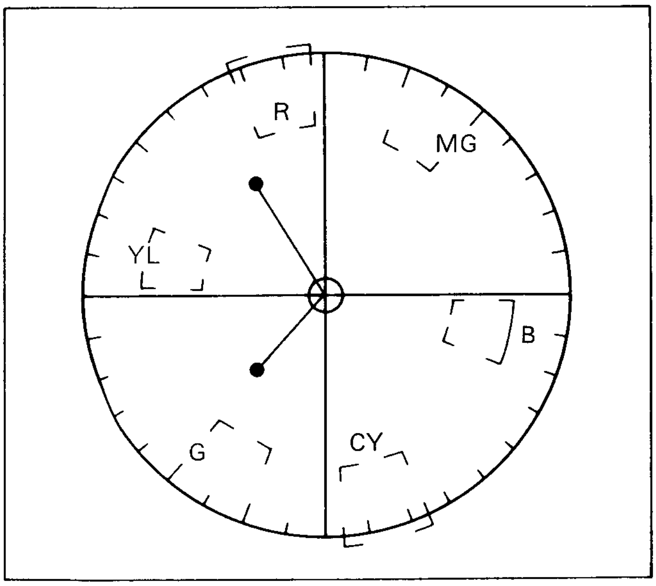


Fig. C15

(1) Cover the Cavera Lens with the Lens Cap.
(2) Connect the jumper wire among TP4, TP5, and TP6 on process C.B.A.
(3) Adjust the Black Pedestal Control (VR308) so that the colour vectors collect at the centre of screen on the vectorscope.
(4) Adjust the Carrier Balance Controls (VR318 and VR319) so that the colour vectors collect at the centre of of screen on the vectorscope.
(5) Disconnect the jumper wire.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as usin vectorscope.
(2) Adjust VR318 and VR319 so that the waveform is minimized.

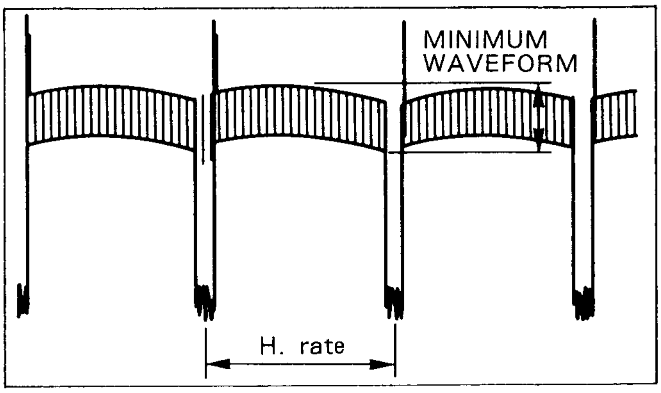


Fig. C16

12. INDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR322 VR323	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR322, VR323 : Process C.B.A.

WITH VECTORSCOPE
(1) Set the White Balance Switch to "INDOOR" side.
(2) Connect the jumper wire among TP4, TP5 and TP6 on process C.B.A.
(3) Aim the camera at the White Chart.
(4) Supply the video signal to the vectorscope.
(5) Adjust the White Balance Controls (VR322 and VR323) so that the colour vectors are collected at the centre of scrren on the vectorscope as shown in Fig. C15.
(6) Confirm the colour of picture when after adjustment.
If colour is failure, then adjust the above procedures again.

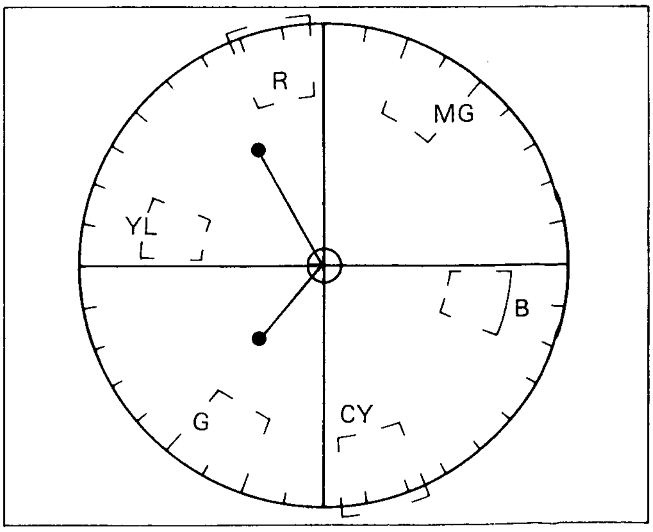


Fig. C17

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR322 and VR323 so that the waveform is minimized.

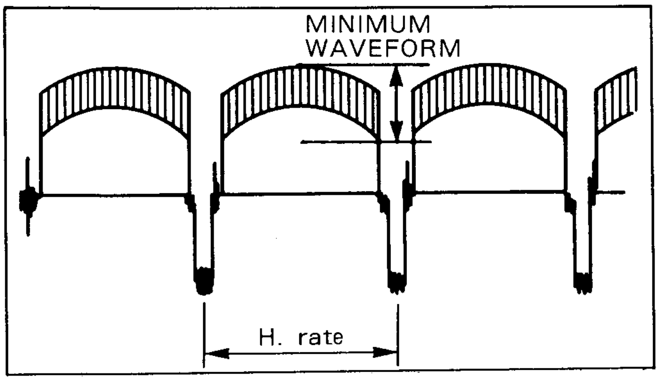


Fig. C18

13. OUTDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR312 VR313	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCOPE	WAVEFORM IS MINIMIZED		

Note:
VR312, VR313 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch on the Camera Operation Unit to the "OUTDOOR".
(2) Connect the jumpr wire among TP4, TP5 and TP6 on Process C.B.A.
(3) Aim the camera at the White Chart using a 3200 degress K Halogen lamp.
(4) Supply the video signal to the vectorscope.
(5) Attach the colour temperature convrsion filter (VFK0374) which converts 3200 degrees Kelvin to 5200 degrees Kelvin in front of the lens. (Refer to Note 1 of item 18–3.
(6) If the colour temperature convrsion filter is not available, use a day light source. (Refer to Note 2 of item 18–3)
(7) Adjust the White Balance (B–Y) Outdoor Gain and White Balance (R–Y) Outdoor Gain Controls (VR312 and VR313) so that the colour vectors move to the centre of screen on the vector scope. (Refer to Fig. C19)
(8) Remove the colour temperature conversion filter with the fixture from the lens.

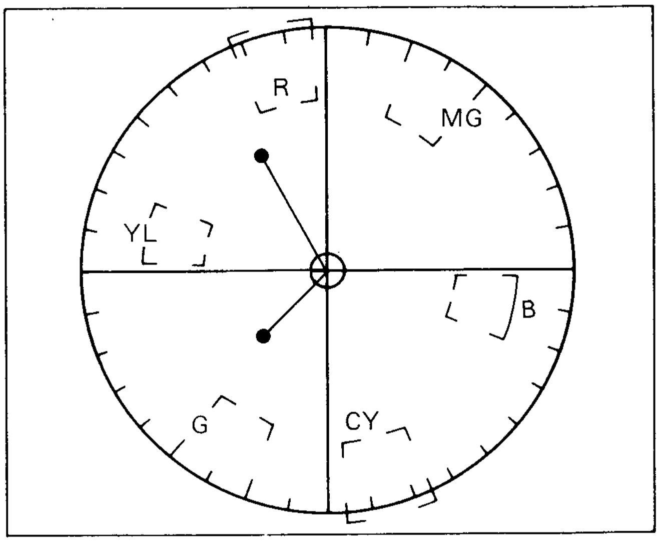


Fig. C19

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR312 and VR313 so that the waveform is minimized.

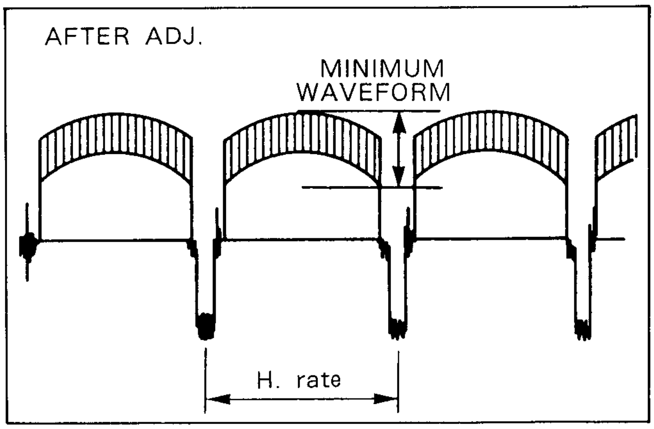


Fig. C20

14. AWB OFFSET ADJUSTMENT WITH VECTOR SCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR314 VR315		WHITE CHART
M.EQ.		**SPEC.**	
VECTOR SCOPE		VECTORS CENTER	

Note:
White balance selector should be set for "INDOOR".

(1) Aim the camera at the white chart and focus the lens on the object.
(2) Connect the VECTOR SCOPE to the video output.
(3) Adjust the offset control (VR314, VR315) so that the vector comes to centre as shown below.

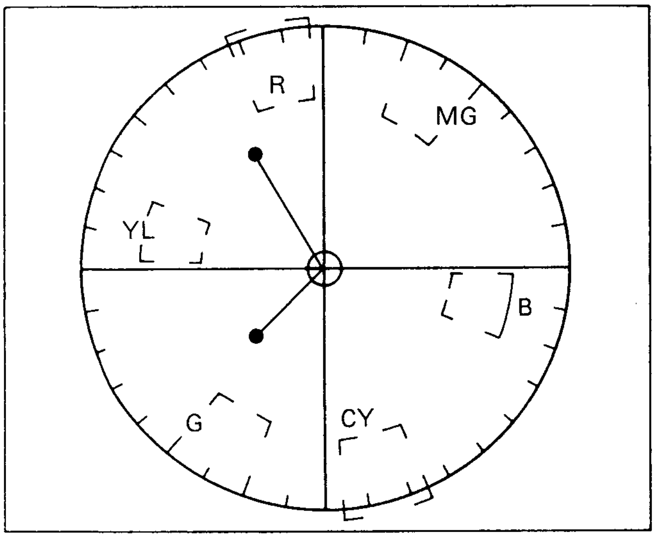


Fig. C21

WITH OSCILLOSCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR314 VR315		WHITE CHART

M.EQ.	SPEC.
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

(1) Aim the camera at the white chart and focus the lens on the object.
(2) Connect the OSCOLLOSCOPE to the video output.
(3) Adjust the offset control (VR314, VR315) so that the waveform is minimized as shown below.

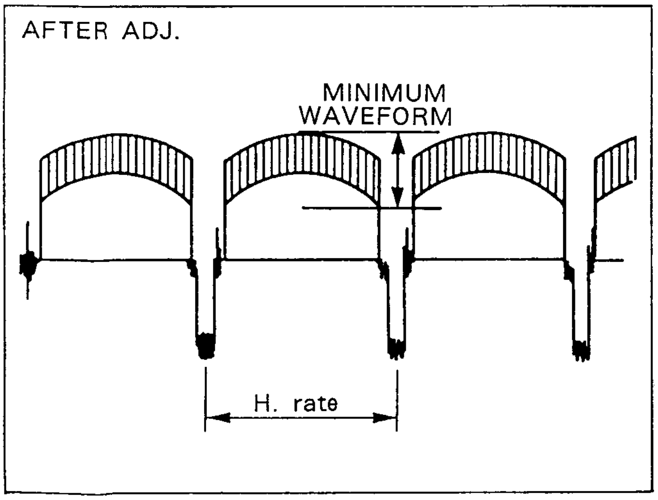


Fig. C22

15. COLOUR PHASE AND R–Y/B–Y GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR316, VR317 VR303, VR324	NO	COLOUR CHIP CHART

M. EQ.	SPEC.
VECTORSCOPE	FIG C23

Note:
VR316, VR317, VR303, VR324 : Process C.B.A.

(1) Aim the camera at a Colour Cip Chart.
(2) Connect the jumper wire among TP4, TP5 and TP6 on the Process C.B.A.
(3) Supply the video signal to the vectorscope.
(4) Adjust the Colour Phase Control (VR303 and VR324), the R–Y Gain Control (VR316) and the B–Y Gain Control (VR317) so that hte vector of each colour is as shown in Fig C23.

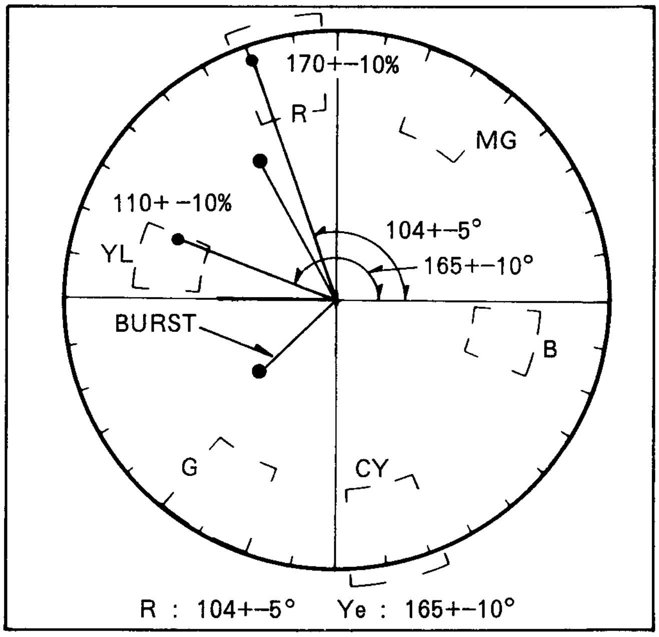


Fig. C23

16. HIGH INTENSITY SUPPRESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR306 VR325	NO	COLOUR CHART

M. EQ.	SPEC.
TV MONITOR	HALF SIZE (YELLOW) YELLOW COLOUR IS JUST BEFOR CUT OFF

Note:
VR306 : Process C.B.A.

(1) Aim the camera at the colour chart that it is not colour chip chart,but the colour bar chart and focus the lens to it.
Connect the oscilloscope to camera output.
Adjust the Zoom ring so that H.rate become 12 usec on oscilloscope.
(2) Supply the video output from camera to TV Monitor .Connect the resistor (470ohm) between centre and VR302 and GND as shown in Fig. C24.

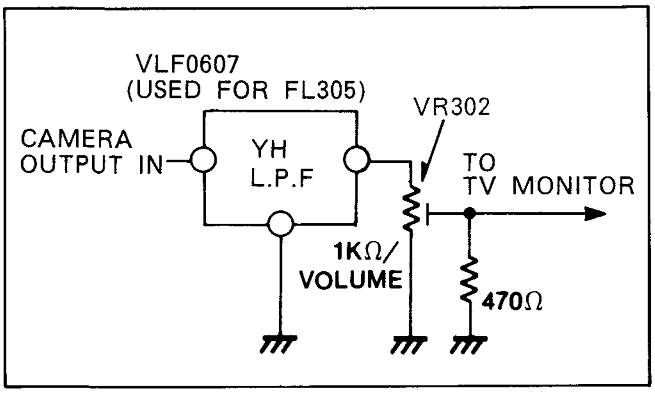

VLF0607
(USED FOR FL305)
VR302
CAMERA OUTPUT IN
YH L.P.F
TO TV MONITOR
1KΩ/ VOLUME
470Ω

Fig. C24

(3) Adjust VR325 so that the yellow part of colour chart appears half size of all yellow part on TV Monitor as shown in Fig. C25.
(4) Next adjust VR306 so that the colour of yellow is just befor cut off.

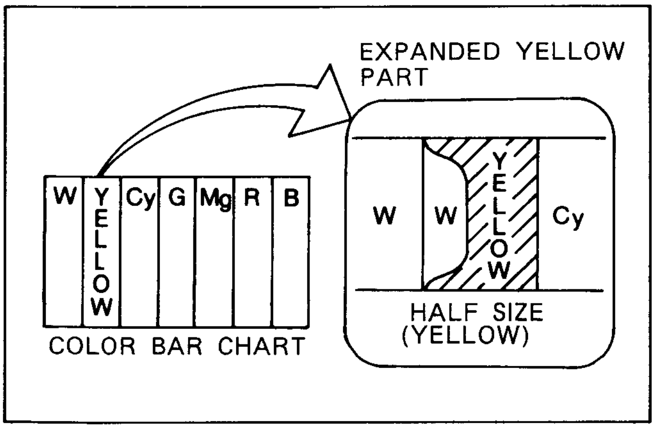

EXPANDED YELLOW PART
W
YELLOW
Cy
G
Mg
R
B
COLOR BAR CHART
W
W
YELLOW
Cy
HALF SIZE (YELLOW)

Fig. C25

17. LOW LIGHT INDICATION ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP12	VR107	NO	WHITE CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	REFER TO FIG. C26		

Note:
TP12, VR107 : Process C.B.A.

(1) Connect the oscilloscope to TP12 and set it in DC mode.
(2) Shade surface of AWT Sensor with gand and adjust VR107 so that DC level at TP12 is changed from "LOW" to "HIGH"

Note:
For more acurate adjustment;
When the illumination of the surface of AWT Sensor is 6lux, the level must be "LOW".
When the illumination of the surface of AWT Sensor is 3lux, the level must be "HIGH".

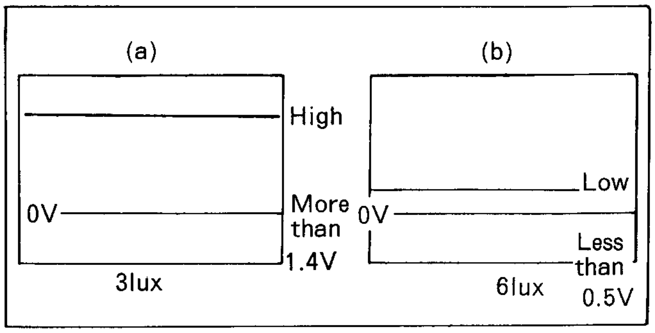

(a)
(b)
High
0V
More than 1.4V
3lux
Low
0V
Less than 0.5V
6lux

Fig. C26

18. AWT MODE ADJUSTMENT

Note:
1) Perform all three sections of this procedure.
2) Set the WHITE BALANCE Switch n the CAMERA OPERATION UNIT to the "AUTO".

18–1. AWT MODE (OFFSET) ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
VIDEO OUTPUT	VR105 VR106	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCPE	WAVEFORM IS MINIMIZED		

Note:
VR105, VR106 : Process C.B.A.
Set the White balance selector for "AUTO" position.

WITH VECTORSCOPE

(1) Aim the cavera at the white chart.
(2) Supply the video signal to the vectorscope.
(3) Rotate VR101 and VR102 fully clocksise as shown in Fig. C27.

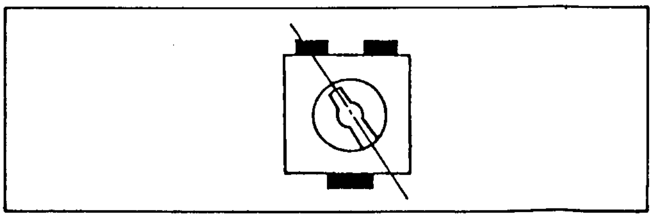


Fig. C27

(4) Adjust the AWT (R–Y OFFSET) and AWT (B–Y OFFSET) controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope. (Refer to Fig. 28)

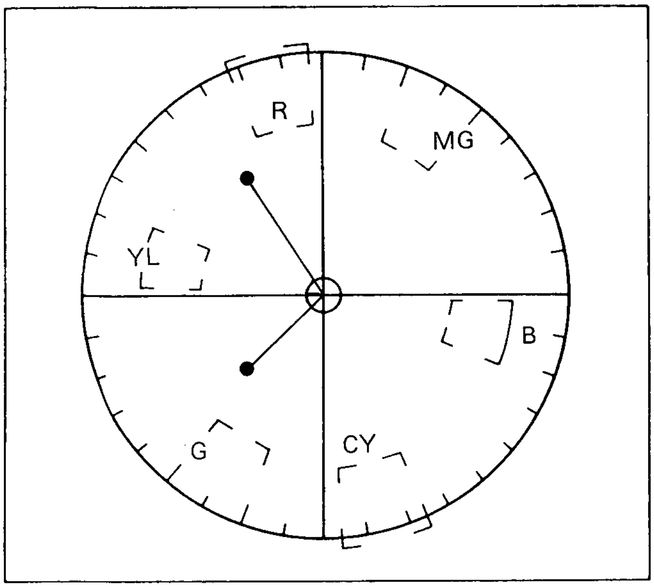


Fig. C28

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR105 and VR106 so that the waveform is minimized.

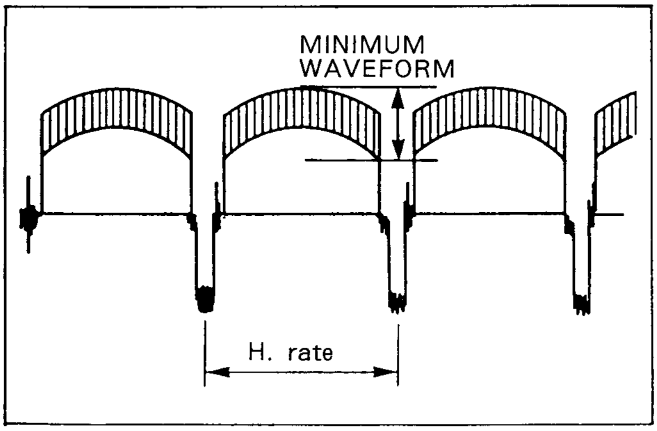


Fig. C29

18–2. AWT MODE (GAIN) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR103, VR104, VR105, VR106	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OOSCILLOSCPE	WAVEFORM IS MINIMIZED

Note:
VR103, VR104, VR105, VR106 : Process C.B.A. Set the White balance selector for "AUTO" position.

WITE VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp.
(2) Supply the video signal to the vectorscope.
(3) Attach the colour temperature conversion filter (VFK0375) x 3 piecies ,which converts 3200 degrees Kelvin to 4000 degrees Kelvin, in front of the Lens and AWT Sensor. (Refer to Note 1 of item. 18–3)
(4) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2 of item. 18–3)
(5) Adjust the AWT (R–Y GAIN) and AWT (B–Y GAIN) Controls (VR103 and VR104) so that the colour vector move to the centre of screen on the vectorscope. (Refer to Fig. C30)

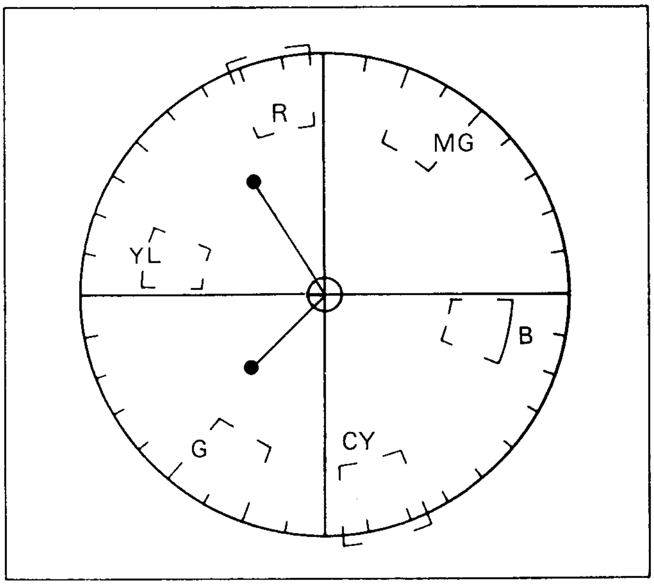


Fig. C30

(6) Next, remove the colour temperature convrsion filter with the fixture from the Lens.
(7) If the colour vectors do not collect at the centre, adjust the AWT (R–Y OFFSET) and AWT (B–Y OFFSET) Controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope.
(8) Repeat steps (1)–(7) so that the colour vectors collect at the centre of screen on the vectorscope.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR103, VR104, VR105 and VR106 so that the waveform is minimized.

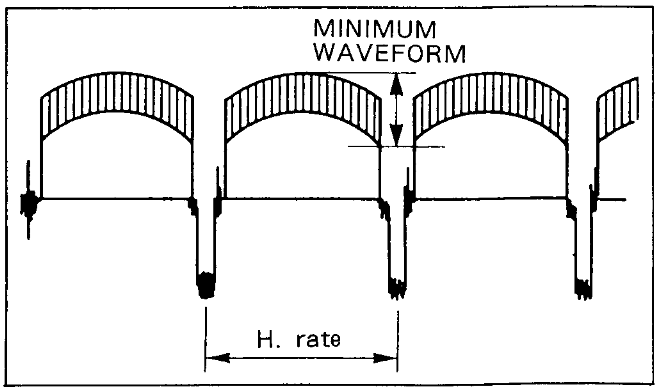


Fig. C31

18–3. HIGH COLOUR TEMPERATURE CLIP ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR101 VR102	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR101, VR102 : Process C.B.A.
When this adjustment is performed, previous items 18–1 and 18–2 must be completed.
Set the white balance selector for "AUTO" position.

WITH VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp.
(2) Supply the video signal to the vectorscope.
(3) Attach the colour temperature conversion filter (VFK0374) x 2 pieces ,which convert 3200 degrees Kelvin to 13000 degrees Kelvin , in front of the Lens and AWT Sensor. (Refer to Note 1 of item. 18–3).
(4) If the colour temperature conversion filters are not available, use a day light source. (Rfer to Note 2 of item. 18–3)
(5) Adjust the Colour Temperature Clip Controls (VR101 and VR102) so that the colour vectors collect at the contre of screen on the vectorscope.

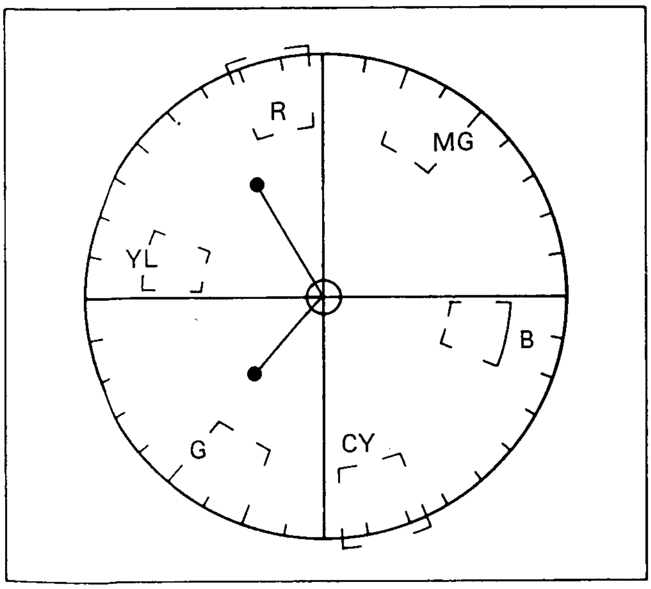


Fig. C32

WITH OSCOLLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR101 and VR102 so that hte waveform is minimized.

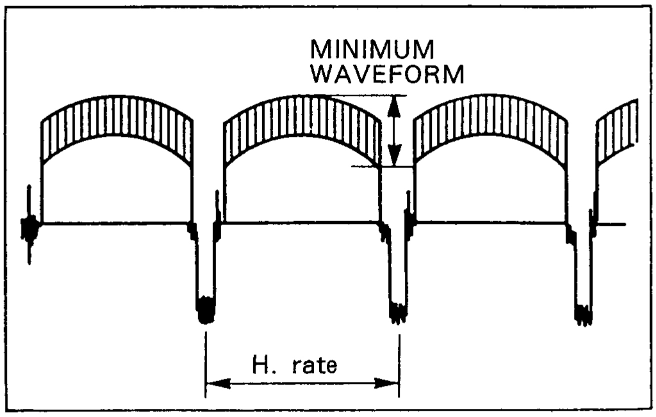


Fig. C33

Note 1:
Attach the fixture to the Lens, then attach the colour temperatue convrsion filter to fixtue.
It can be procured at a Camera Store. Please construct the fixture using the sheet attached to inside cover page at the back of the Service Manual. (Refer to Fig. C34)

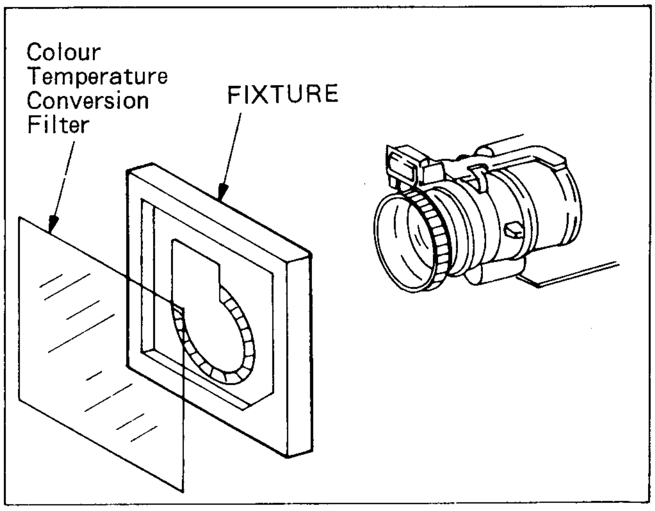


Fig. C34

Note 2:
(1) Aim the camera at a sunny outdoor source (window, etc.).
(2) Incoming light must be from an outdoor source only; source and illumination on the sensor must be more than 500Lx, and colour temperature must be within 5000 degrees to 6000 degrees Kelvin.
(Refer to Fig. C35)

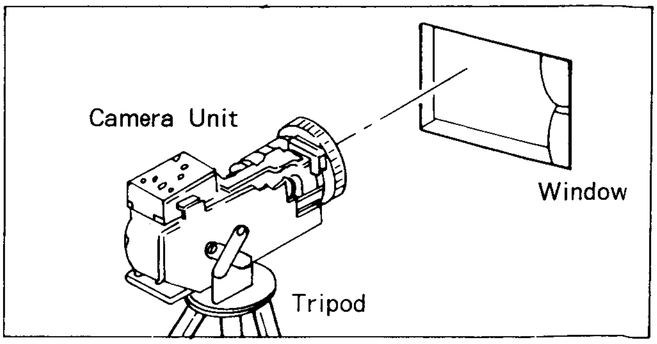


Fig. C35

AUTO FOCUS SECTION

PREPARATION

The following adjustments are for the Auto Focus Unit.

(1) Camera zoom is positioned at the end of TELE side.

19. AF GATE ADJUSTMENT

TP	**ADJ.**	**IRIS CAP**	**CHART**
TP602, TP603	C656	NO	
M. EQ.	**SPEC.**		
OSCILLOSCOPE	T = 9.6 +- 0.4usec.		

Note:
TP602, TP603, C656 : AF C.B.A.

(1) Set the AF Gate Contol (C656) as shown in Fig. C36.

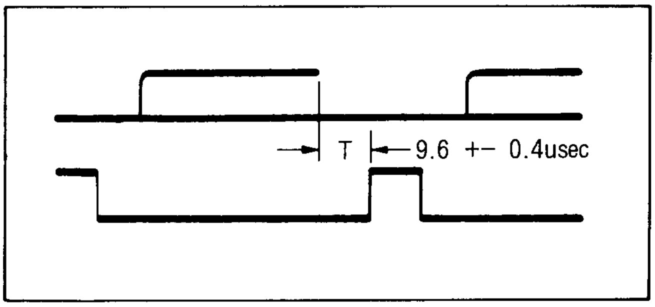


Fig. C36

20. BIMOLF GAIN CONTROL ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP604	VR603	YES	
M. EQ.	**SPEC.**		
OSCILLOSCPE	A = 16V +- 0.5Vp-p		

Note:
TP604, VR603 : AF C.B.A.

(1) Set the Focus Switch to the MANUAL position.
(2) Cover the camera lens with the lens cap.
(3) Connect the scope to the TP604.
(4) Adjust the Bimolf Gain Control (VR603) so that the signal level (A) is 16V +- 0.5Vp-p.

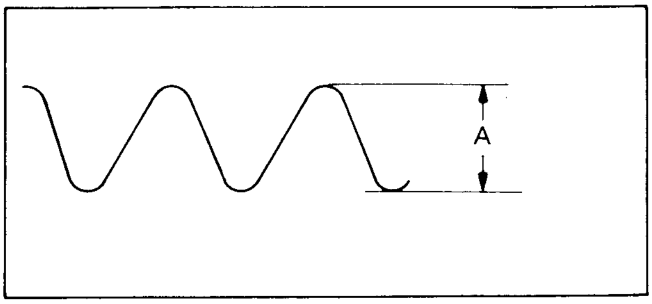


Fig. C37

21. AF AMP BIAS AND GAIN ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP3, TP9 TP10, TP11	VR601, VR602	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
D.V.M.	----------------		

Note:
TP3, TP9, TP10, TP11 : Process C.B.A.
VR601, VR602 : AF C.B.A.

(1) Connect a jumper wire between TP3 and TP10.
(2) Adjust the AF AMP BIAS Control (VR601) so that the voltage level at TP9 is 1.74V +- 0.02V.
(3) Disconnect the jumper wire between TP3 and TP10.
(4) Next, connect a jumper wire between TP10 and TP11.
(5) Adjust the AF AMP Gain Control (VR602) so that the moltage Level of TP9 is 3.72V +- 0.05V.
(6) Disconnect the jumper wire between TP10 and TP11.
(7) Next, confirm the voltage level at TP9 by connecting a jumper wire between TP3 and TP10.
(8) If the voltage level at TP9 is not 1.74V +- 0.02V, repeat steps (1) - (6).

22.AF VH FREQUENCY ADJUSTMENT

TP	**ADJ.**	**IRIS CAP**	**CHART**
TP605	C621	NO	WHITE/GRAY CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	A=2.80Vp-p+-0.05Vp-p		

Note:
TP605,TP610,TP611:AF C.B.A.

Zoom : TELE SIDE
Focus : AUTO

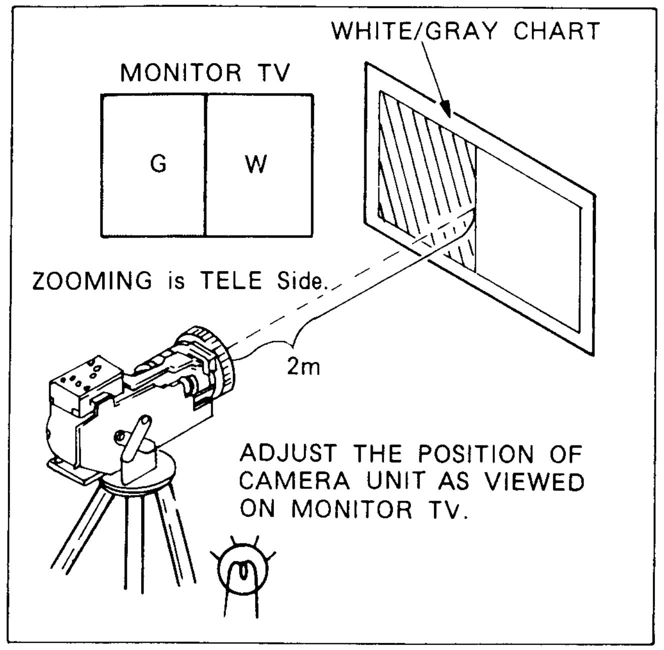

WHITE/GRAY CHART
MONITOR TV
G
W
ZOOMING is TELE Side.
2m
ADJUST THE POSITION OF CAMERA UNIT AS VIEWED ON MONITOR TV.

Fig. C38

(1) Connect a jumper between TP10 and TP11.
(2) Aim the camera at the white/gray chart attached to inside of this service manual.
(3) Confirm that the voltage at TP610 is 180mVp-p+-10mVp-p.
(4) If the voltage at TP610 is not it,adjust the light source so that the 180mVp-p +- 10mVp-p should be obtained at TP610.
(5) Adjust C621 so that the "A" level at TP605 is 2.80mVp-p +- 0.05mVp-p.

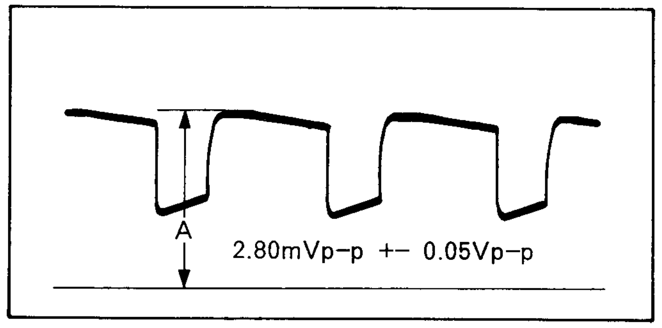


Fig. C39

2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

PREPARATION

The following adjustments are for the Electronic Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. H-OSC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
Pin2 of P701	VR702	NO	BALL CHART
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		15.6KHz +- 0.1KHz	

Note:
P701, VR702 : E.V.F. C.B.A.

(1) Connect the scope to Pin2 of P701, use DC.
(2) Adjust the H-OSC (VR702) so that the frequency is 15.6 +- 0.1KHz.

2. CENTERRING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the Deflection Yoke Centering Magnets by turning them so that the picture on monitor TV is centreed.

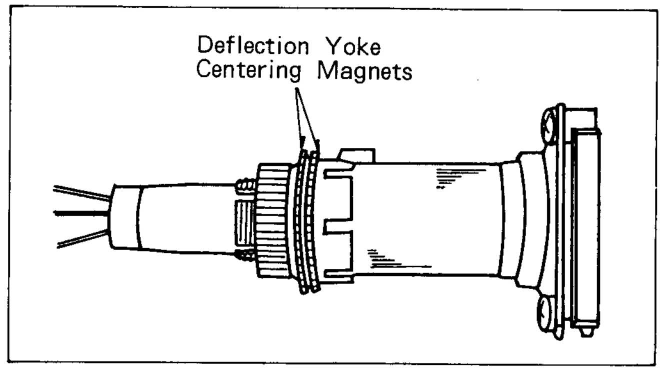

Deflection Yoke Centering Magnets

Fig. C40

3. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR704	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTIONON	

Note:
VR704 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR704) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR701	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR701 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR701) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

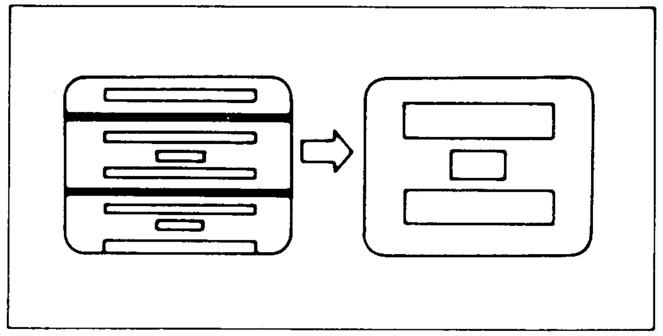


Fig. C41

5. BRIGHTNESS ADJUSTMENT

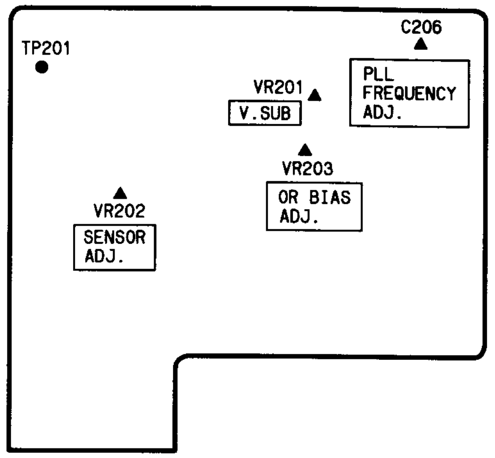
TP	ADJ.	LENS CAP	CHART
	VR705	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

Note:
VR705: EVF C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR705) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION OF TEST POINTS & CONT

SENSOR C.B.A.


TP201
C206
VR201
V.SUB
PLL FREQUENCY ADJ.
VR203
OR BIAS ADJ.
VR202
SENSOR ADJ.

E.V.F. C.B.A.

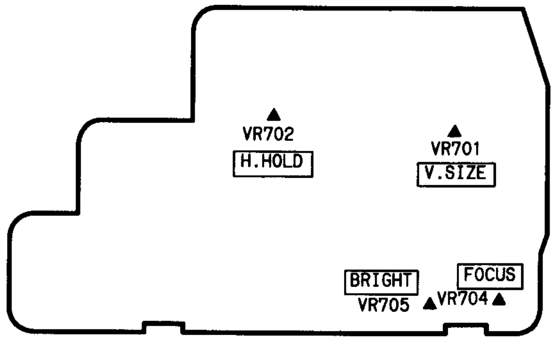

VR702
H.HOLD
VR701
V.SIZE
BRIGHT
VR705
FOCUS
VR704

CHART
BALL CHART
PEC.
+- 0.1KHz

P701, use DC.
that the frequency

ation chart.
Centering Magnets
picture on monitor

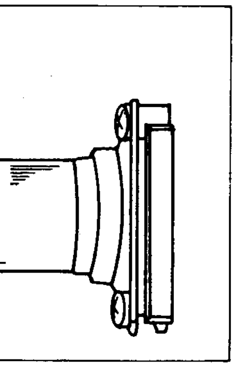


CHART
BALL CHART
SPEC.
SOLUTIONON

art.
VR704) for best

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR701	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR701 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR701) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

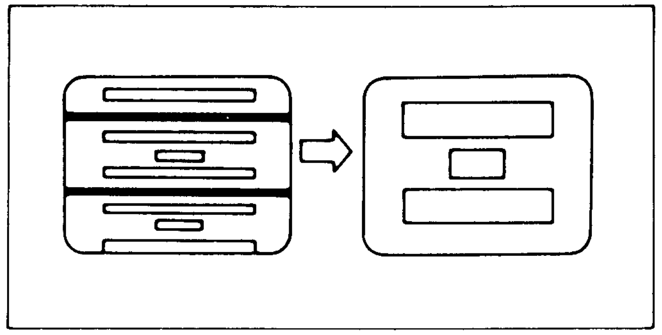


Fig. C41

5. BRIGHTNESS ADJUSTMENT

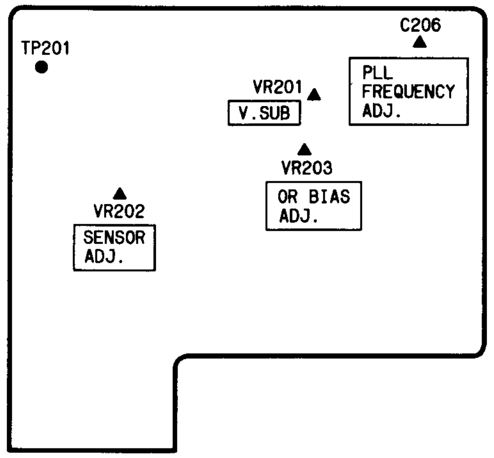
TP	ADJ.	LENS CAP	CHART
	VR705	NO	GRAY SCALE CHART
M. EQ.		SPEC.	
VIEWFINDER		NATURAL GRADATION	

Note:
VR705: EVF C.B.A.

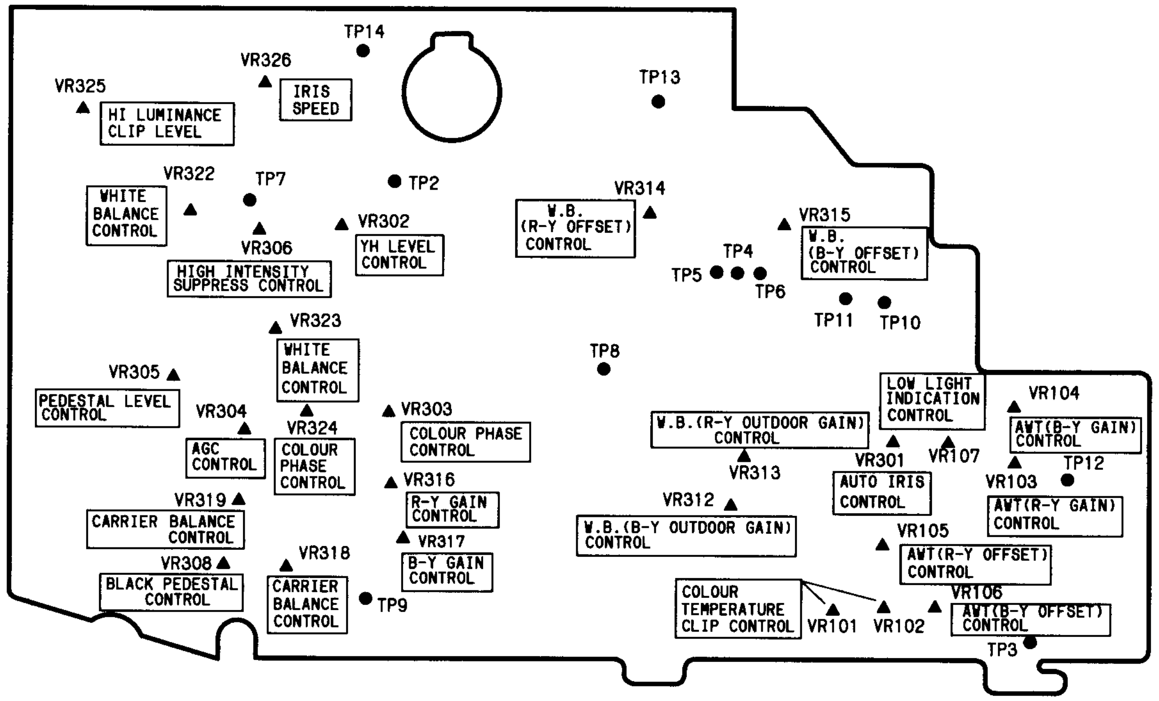
(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR705) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION OF TEST POINTS & CONTROLS (1)

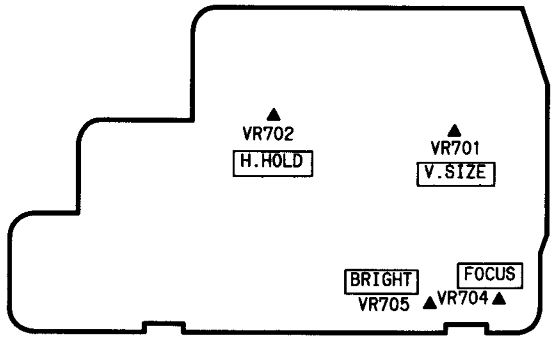
SENSOR C.B.A.


TP201
C206
VR201
V.SUB
PLL FREQUENCY ADJ.
VR203
OR BIAS ADJ.
VR202
SENSOR ADJ.

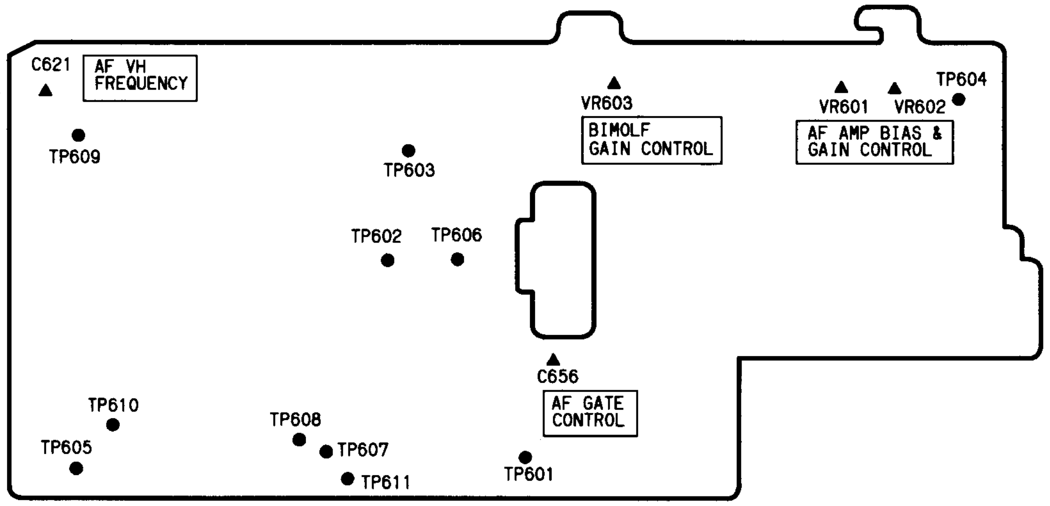
PROCESS C.B.A.


TP14
VR326
IRIS SPEED
VR325
HI LUMINANCE CLIP LEVEL
TP13
VR322
WHITE BALANCE CONTROL
TP7
TP2
VR306
HIGH INTENSITY SUPPRESS CONTROL
VR302
YH LEVEL CONTROL
VR314
W.B. (R-Y OFFSET) CONTROL
VR315
W.B. (B-Y OFFSET) CONTROL
TP4
TP5
TP6
TP11
TP10
VR323
WHITE BALANCE CONTROL
TP8
VR305
PEDESTAL LEVEL CONTROL
VR304
AGC CONTROL
VR324
COLOUR PHASE CONTROL
VR303
COLOUR PHASE CONTROL
W.B.(R-Y OUTDOOR GAIN) CONTROL
VR313
LOW LIGHT INDICATION CONTROL
VR301
AUTO IRIS CONTROL
VR107
VR104
AWT(B-Y GAIN) CONTROL
VR103
TP12
AWT(R-Y GAIN) CONTROL
VR316
R-Y GAIN CONTROL
VR319
CARRIER BALANCE CONTROL
VR312
W.B.(B-Y OUTDOOR GAIN) CONTROL
VR105
AWT(R-Y OFFSET) CONTROL
VR317
B-Y GAIN CONTROL
VR318
VR308
BLACK PEDESTAL CONTROL
CARRIER BALANCE CONTROL
TP9
COLOUR TEMPERATURE CLIP CONTROL
VR101
VR102
VR106
AWT(B-Y OFFSET) CONTROL
TP3

E.V.F. C.B.A.

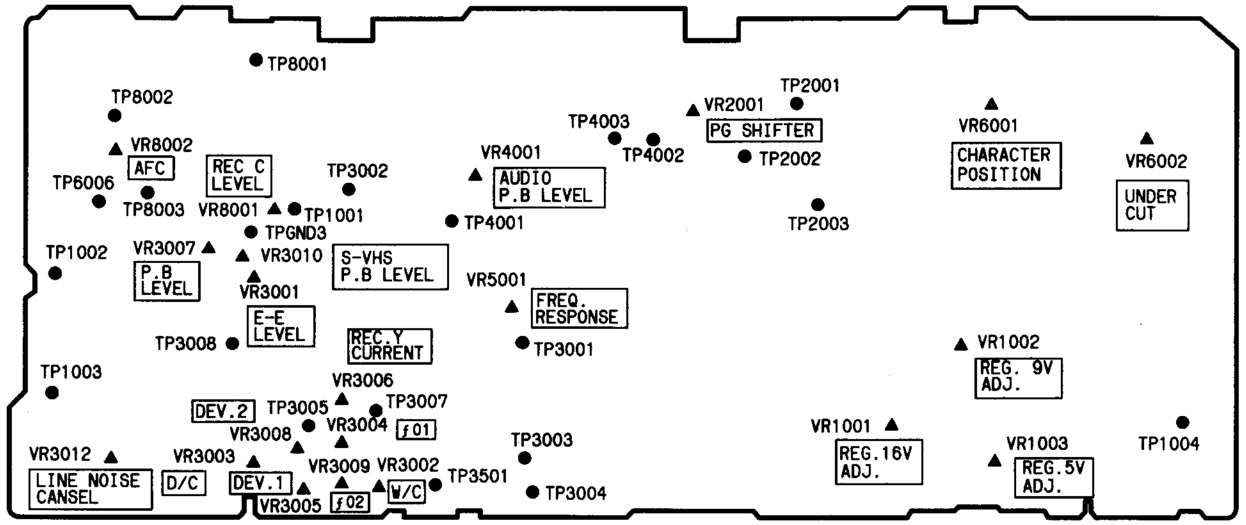

VR702
H.HOLD
VR701
V.SIZE
BRIGHT
VR705
FOCUS
VR704

AUTO FOCUS C.B.A.

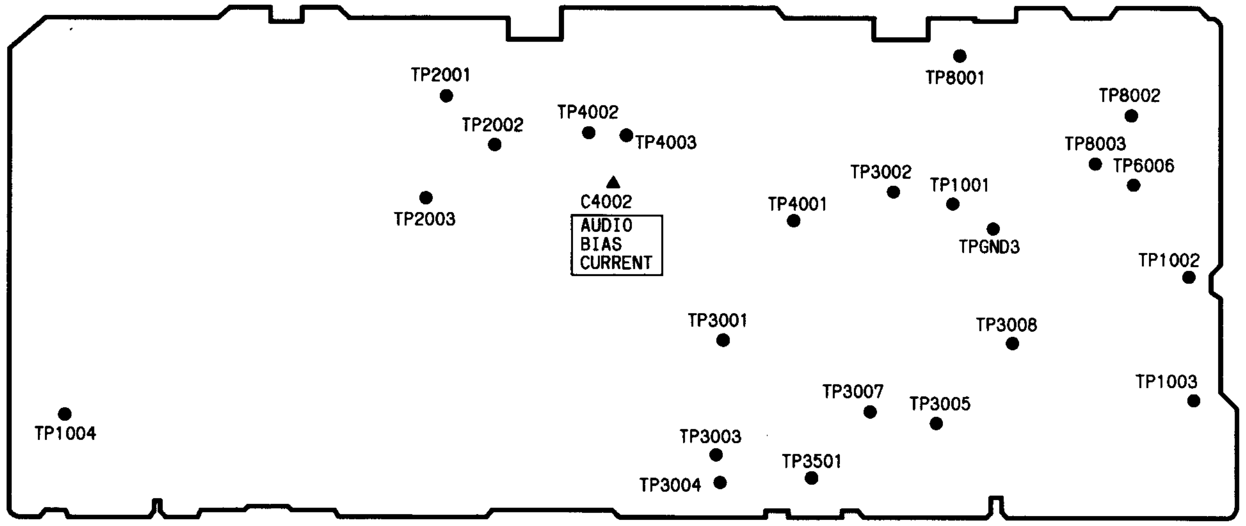

C621
AF VH FREQUENCY
TP609
VR603
BIMOLF GAIN CONTROL
TP603
VR601
VR602
TP604
AF AMP BIAS & GAIN CONTROL
TP602
TP606
C656
AF GATE CONTROL
TP610
TP605
TP608
TP607
TP611
TP601

LOCATION OF TEST POINTS & CONTROLS (2)

MAIN C.B.A. (FOIL SIDE)


TP8001
TP8002
VR8002
AFC
TP6006
TP8003
VR8001
REC C LEVEL
TP3002
TP1001
TPGND3
TP1002
VR3007
P.B LEVEL
VR3010
VR3001
S-VHS P.B LEVEL
E-E LEVEL
TP3008
REC.Y CURRENT
VR3006
TP1003
DEV.2
TP3005
TP3007
VR3008
VR3004
f01
VR3012
VR3003
VR3009
VR3002
LINE NOISE CANSEL
D/C
DEV.1
VR3005
f02
W/C
TP3501
TP3003
TP3004
VR4001
AUDIO P.B LEVEL
TP4001
TP4003
TP4002
VR5001
FREQ. RESPONSE
TP3001
VR2001
PG SHIFTER
TP2001
TP2002
TP2003
VR6001
CHARACTER POSITION
VR6002
UNDER CUT
VR1002
REG. 9V ADJ.
VR1001
REG.16V ADJ.
VR1003
REG.5V ADJ.
TP1004

MAIN C.B.A. (COMPONENT SIDE)


TP2001
TP2002
TP2003
TP4002
TP4003
C4002
AUDIO BIAS CURRENT
TP4001
TP3002
TP1001
TPGND3
TP8001
TP8002
TP8003
TP6006
TP1002
TP3001
TP3008
TP1003
TP3007
TP3005
TP3003
TP3501
TP3004
TP1004

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the VTR section of VHS Movie.

1) VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01～50V
2) Dual Trace Oscilloscope
   Voltage Range : 0.06～50V/div
   Frequency Range : 0～10MHz
   Probe : 10: 1 ro 1:1
3) Frequency counter
   Frequency Range : 0～10MHz
4) Signal Generator (Sinewave)
   Frequency Range : 0～10MHz
5) Video Sweep Generator
   Frequency Range : 0～10MHz
6) Colour Monitor TV
7) Plastic Tip Driver
8) VHS Alignment Tape

PREPARATION

(1) Remove the casing panels
    (Refer to the desassemble section)
(2) Connect the jumper wire between P6011−5 and GND as shown in Fig.E1
(3) Supply the video signal and audio signal to the video section by using the Line Adaptor as shown in Fig.E2.

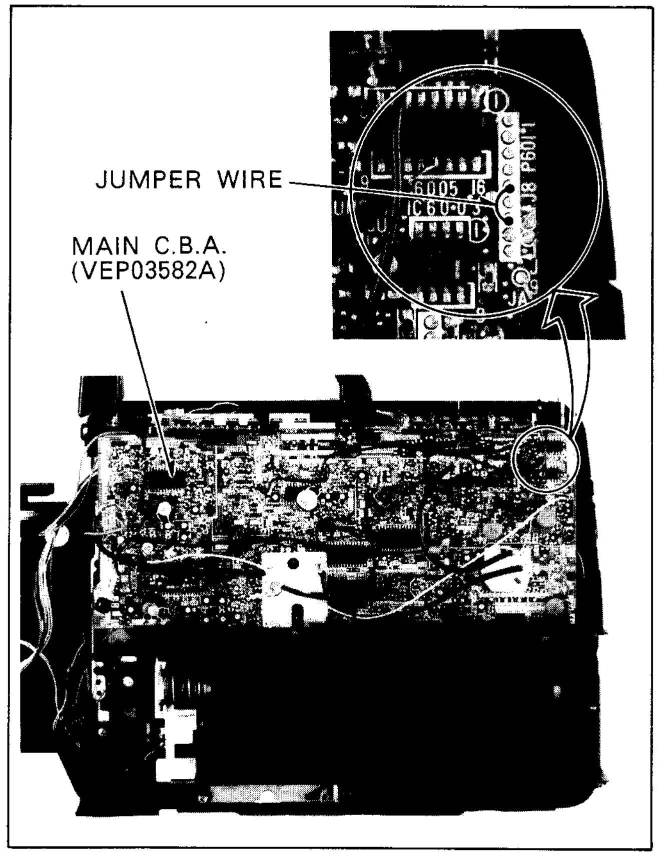

JUMPER WIRE
MAIN C.B.A.
(VEP03582A)

Fig. E1

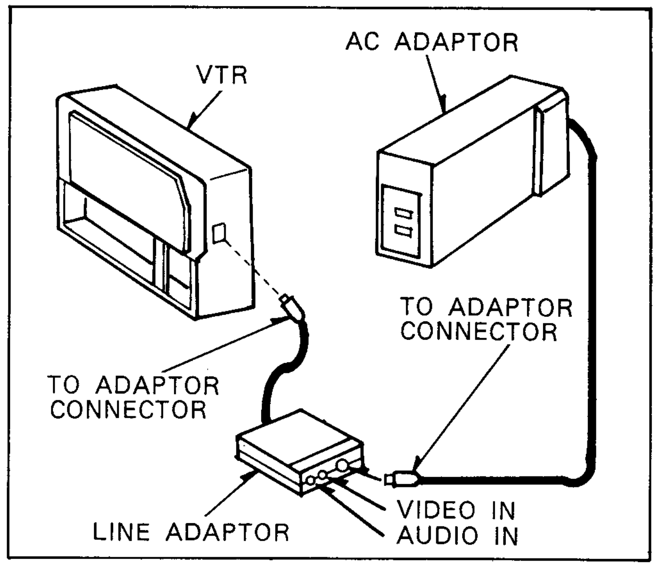
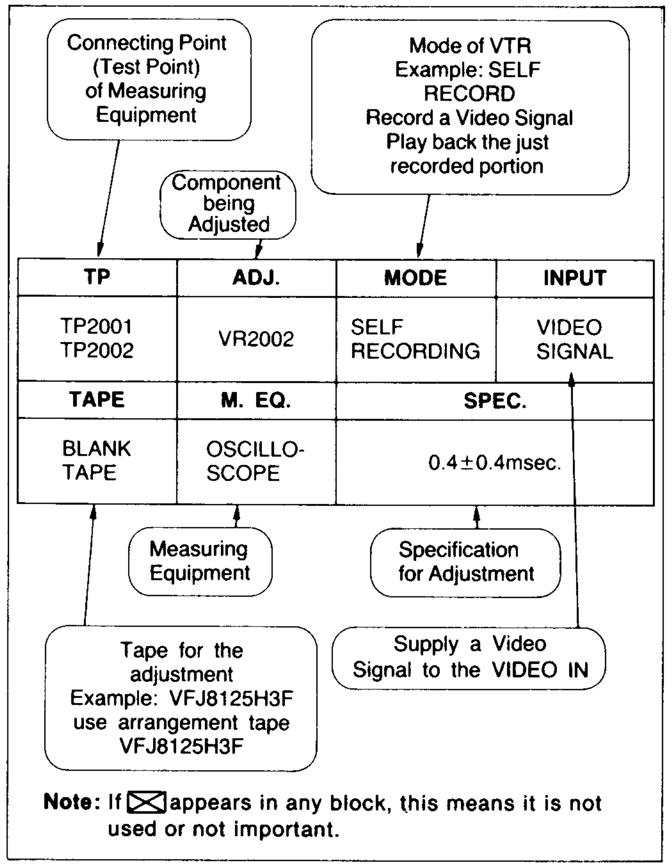

VTR
AC ADAPTOR
TO ADAPTOR CONNECTOR
TO ADAPTOR CONNECTOR
LINE ADAPTOR
VIDEO IN
AUDIO IN

Fig. E2

Note:
The Line Adaptor is available to check the only VTR section.

HOW TO READ THE ADJUSTMENT PROCEDURES



Connecting Point (Test Point) of Measuring Equipment

Component being Adjusted

Mode of VTR
Example: SELF RECORD
Record a Video Signal
Play back the just recorded portion

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.4±0.4msec.	

Measuring Equipment

Specification for Adjustment

Tape for the adjustment
Example: VFJ8125H3F
use arrangement tape
VFJ8125H3F

Supply a Video Signal to the VIDEO IN

Note: If ☒ appears in any block, this means it is not used or not important.

FOR TRIGGERING OF THE OSCOLLOSCOPE

To trigger the Oscilloscope, the following test point is used.
H. rate : TP3002 (Video output)
V. rate : TP2001 (Head Switching signal)

POWER SECTIO

1. REG. 9V ADJUS

TP	
TP1002	VF
TAPE	M
BLANK TAPE	D.

2. REG. 5V ADJUS

TP	
TP1003	VF
TAPE	M
BLANK TAPE	D.

3. REG. 16V ADJU

TP	
TP1001	V
TAPE	M
BLANK TAPE	D

4. UNDER CUT A

TP	
P6011−(6)	VF
TAPE	M
BLANK TAPE	OS SC

(1) Supply the DC multi−connect
(2) Connect the os
(3) Turn the u counter clockw
(4) Turn VR6002 form is chan pulse trains.

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the VTR section of VHS Movie.

1) VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01∼50V
2) Dual Trace Oscilloscope
   Voltage Range : 0.06∼50V/div
   Frequency Range : 0∼10MHz
   Probe : 10: 1 ro 1:1
3) Frequency counter
   Frequency Range : 0∼10MHz
4) Signal Generator (Sinewave)
   Frequency Range : 0∼10MHz
5) Video Sweep Generator
   Frequency Range : 0∼10MHz
6) Colour Monitor TV
7) Plastic Tip Driver
8) VHS Alignment Tape

PREPARATION

(1) Remove the casing panels
    (Refer to the desassemble section)
(2) Connect the jumper wire between P6011-5 and GND as shown in Fig.E1
(3) Supply the video signal and audio signal to the video section by using the Line Adaptor as shown in Fig.E2.

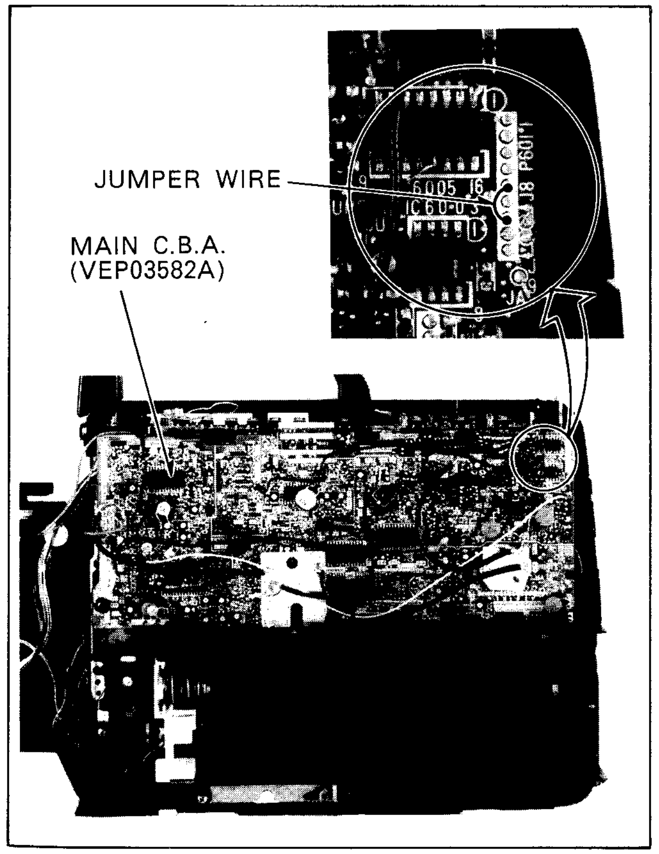


Fig. E1

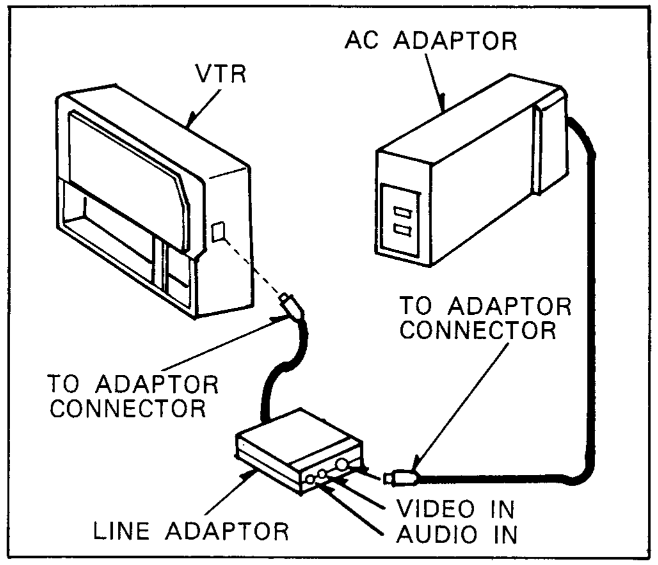
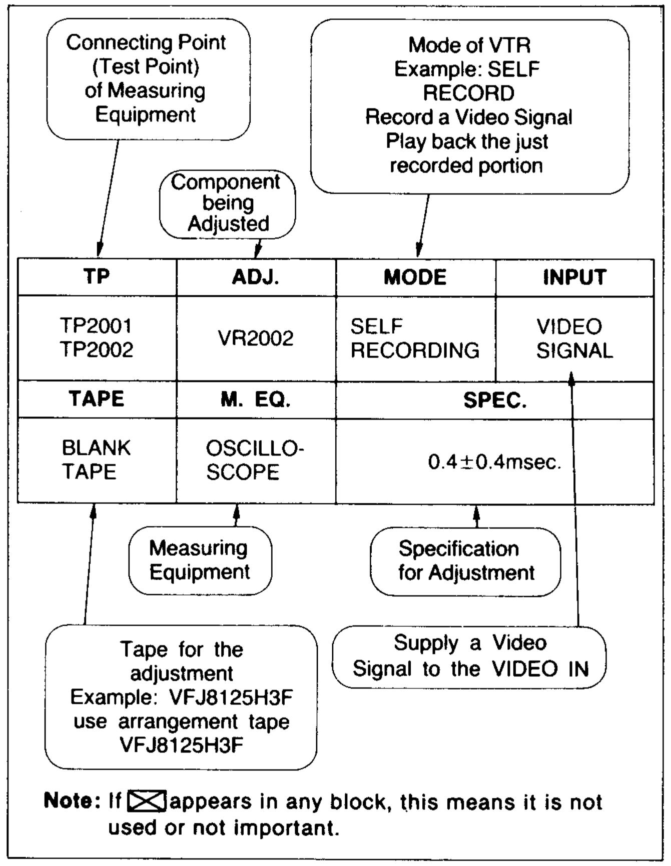


Fig. E2

Note:
The Line Adaptor is available to check the only VTR section.

HOW TO READ THE ADJUSTMENT PROCEDURES



Connecting Point (Test Point) of Measuring Equipment

Mode of VTR
Example: SELF RECORD
Record a Video Signal
Play back the just recorded portion

Component being Adjusted

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.4±0.4msec.	

Measuring Equipment

Specification for Adjustment

Tape for the adjustment
Example: VFJ8125H3F
use arrangement tape VFJ8125H3F

Supply a Video Signal to the VIDEO IN

Note: If ☒ appears in any block, this means it is not used or not important.

FOR TRIGGERING OF THE OSCOLLOSCOPE

To trigger the Oscilloscope, the following test point is used.
H. rate : TP3002 (Video output)
V. rate : TP2001 (Head Switching signal)

POWER SECTION

1. REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1002	VR1002	REC / PLAY	☒
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	8.6 + 0.1V − 0.05V	

2. REG. 5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1003	VR1003	CAMERA RECORDING	☒
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	4.91 +- 0.025V	

3. REG. 16V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	REC / PLAY	☒
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	15.2 +-0.1V	

4. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P6011-(6)	VR6002	REC / PLAY	☒
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	HIGH→ PULSE→ LOW	

(1) Supply the DC voltage 10.5 +- 0.05V to the 14P multi-connector Pin (1) Hot and Pin (3) GND.
(2) Connect the oscilloscope to P6011-(6).
(3) Turn the under cut control (VR6002) fully counter clockwise.
(4) Turn VR6002 clockwise slowly until the wave-form is changed from high to low through the pulse trains.

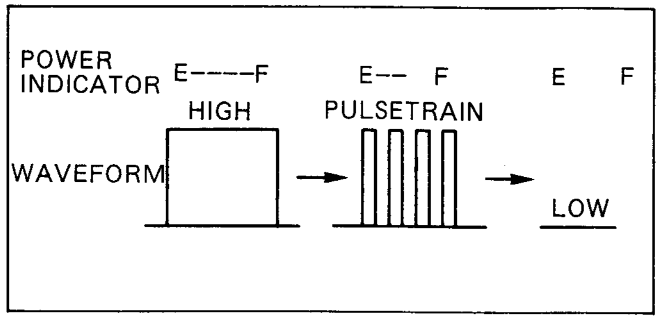


Fig. E3

SERVO SECTION

5. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP3002	VR2001	PLAY	☒
TAPE	**M.EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFJ8125H3F)	OSCILLO-SCOPE	6.5H +- 1H	

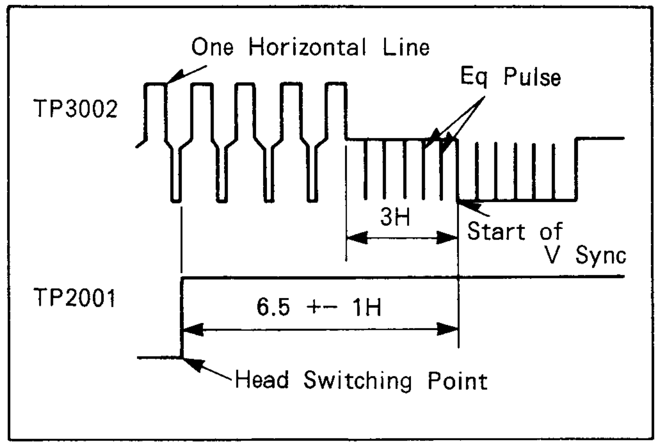


Fig. E4

LUMINANCE & CHROMINANCE SECTION

6. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3001	STOP	COLOUR BAR
TAPE	**M.EQ.**	**SPEC.**	
☒	OSCOLLO-SCOPE	A = 1.0 +- 0.1Vp-p B = 0.5 +- 0.15Vp-p	

Note:
S-VHS/VHS selector should be set for "VHS" position

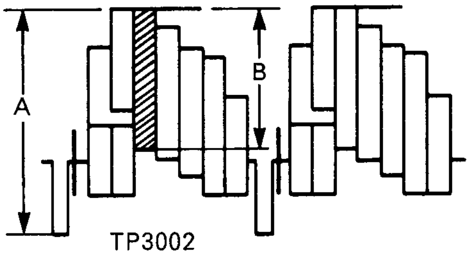


Fig. E5

7. AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8003	VR8002	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	4.2 +– 0.15MHz	

(1) Connect Diode to TP8002 as shown below.

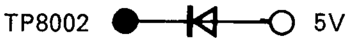


Fig. E6

(2) Connect the frequency counter to TP8003.
(3) Adjust the VR8002 so that frequency become 4.2 +– 0.15MHz.

8. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

8-1. SYNC TIP FREQUENCY ADJUSTMENT

<<VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3007	VR3004	REC.PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQ. COUNTER	3.8MHz+–0.05MHz	

<<S–VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3007	VR3009	REC.PLAY	
TAPE	**M. EQ.**	**SPEC.**	
S–VHS BLANK TAPE	FREQ. COUNTER	5.4MHz+–0.05MHz	

(1) Set the unit to S–VHS mode and REC.PLAY mode.
(2) Adjust VR3009 so that the reading of frequency counter is 5.4MHz+–0.05MHz at TP3007.

8-2. DEVIATION ADJUSTMENT

<<VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003(HOT) TP3004(GND)	VR3005	REC.PLAY	COLOUR BAR
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO–SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

(1) Supply colour bar video signal to 14P multi connector through line adaptor.(Refer to preparation)
(2) Connect a signal generator(sine wave) to TP3007 on Main C.B.A. and set frequency and output level of it as follows.
Frequency: 4.8MHz+–0.05MHz
Output :0.1Vp–p
(3) Connect the oscilloscope to TP3003(HOT) and TP3004(GND) and it uses a trigger at TP2001.
(4) Adjust VR3005 so that inner beat at white portion of colour bar becomes maximum as shown in Fig. E7,Fig. E8.

<<S–VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003(HOT) TP3004(GND)	VR3008	REC.PLAY	COLOUR BAR (B/W MODE)
TAPE	**M.EQ.**	**SPEC.**	
S–VHS BLANK TAPE	OSCILLO–SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

(1) Set the unit to S–VHS mode and REC.PLAY mode.
(2) Supply colour bar video signal(black & white signal mode) to 14P multi connector through line adaptor.(refer to preparation)
(3) Connect a signal generator(sine wave) to TP3007 on Main C.B.A. and set the frequency and output level of it as follows.
Frequency: 7.0MHz+–0.05MHz
Output :0.1Vp–p
(4) Connect the oscilloscope to TP3003(HOT) and TP3004(GND) and it uses a trigger at TP2001.
(5) Adjust VR3005 so that inner beat at white portion of colour bar becomes maximum as shown in Fig. E7,Fig. E8.

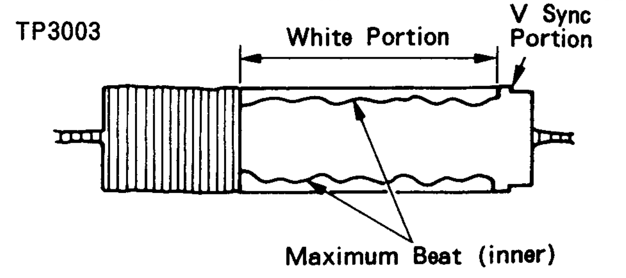


Fig. E7

(Misadjustment)

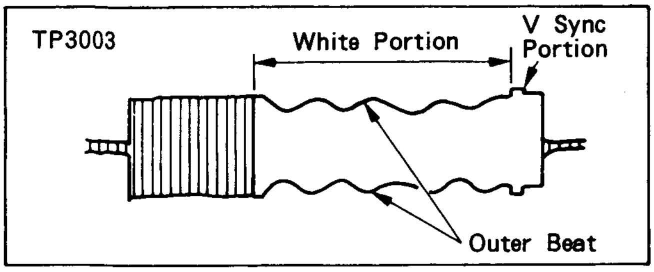

TP3003
White Portion
V Sync Portion
Outer Beat

Fig. E8

9. WHITE AND DARK CLIP ADJUSTMENT

<<S–VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3005	VR3002 VR3003	REC	COLOUR BAR(B/W SIG. MODE W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A = 200 +– 5% B = 160 +– 5%	

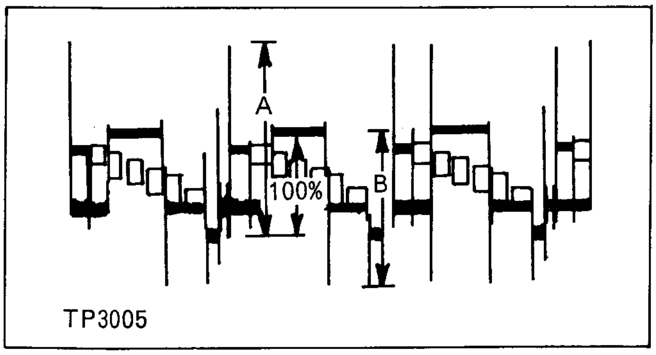

A
100%
B
TP3005

Fig. E9

(1) Set the unit to S–VHS mode and REC.PLAY mode.
(2) Supply colour bar signal to 14P multi connector through line adaptor.(refer to preparation).
(3) Adjust VR3002,VR3003 so that the level of waveform is shown in Fig. E7.

10. RECORDING CURRENT ADJUSTMENT

Preparation:
Connect the Electrolytic Capacitor (6V/47u) between TP3007 (+) to GND.

10-1. REC CHROMA LEVEL ADJUSTMENT

<<S–VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR8001	REC / PLAY	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	26 +– 5mVp–p	

(1) Set the unit to S–VHS mode and REC.PLAY mode.
(2) Connect the Oscilloscope to TP3003 (HOT) and TP3004 (GND).
(3) Eliminate Luminance signal by turning VR3006.
(4) Adjust VR8001 so that Chroma level become 26 +– 5mVp–p.

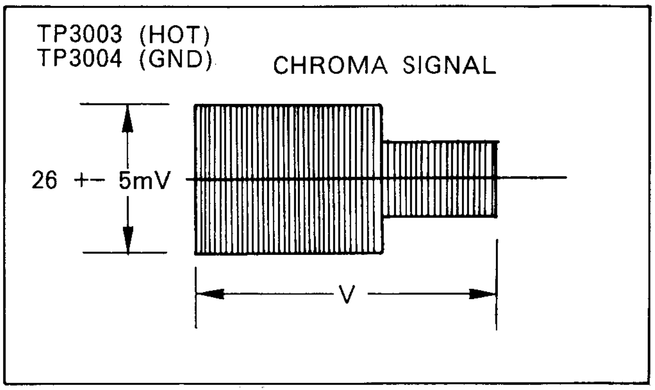

TP3003 (HOT)
TP3004 (GND)
CHROMA SIGNAL
26 +– 5mV
V

Fig. E10

10-2. LUMINANCE RECORDING CURRENT ADJUSTMENT

<<S–VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR3006	REC / PLAY	VIDEO SIGNAL
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	100mV +– 5mVp–p	

(1) Set the unit to S–VHS mode and REC.PLAY mode.
(2) Supply colour bar video signal to 14P multi connector through line adaptor.(refer to preparation)
(3) Adjust VR3006 to 100mV+–5mVp–p.

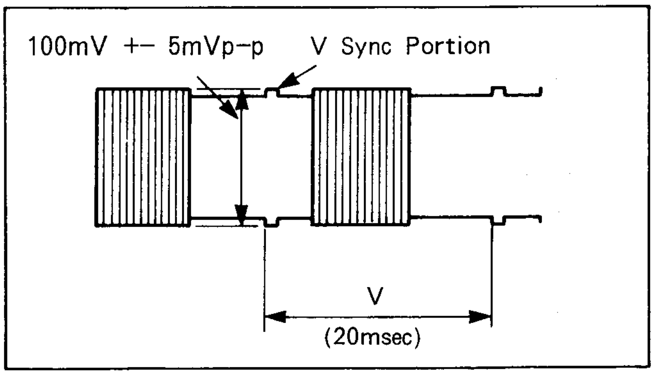

100mV +– 5mVp–p
V Sync Portion
V
(20msec)

Fig. E11

11. LINE NOISE CANCEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3008	VR3012	SELF RECORDING (VHS MODE)	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	Less than 16mVp-p	

(1) Record the video signal.(VHS MODE)
(2) Connect the oscilloscope to TP3008.
(3) Playback just recorded portion.
(4) Adjust VR3012 so that level between sync and white 100% become less than 16mVp-p.

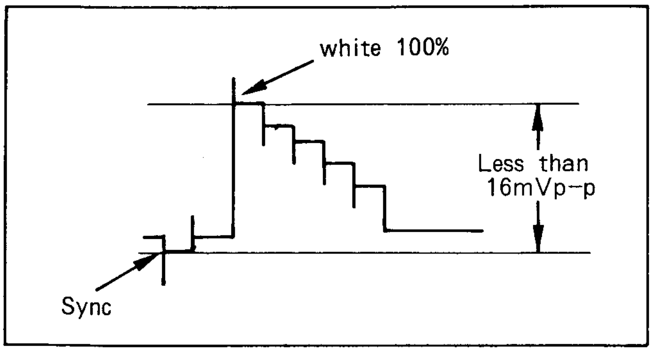


Fig. E12

12. VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3007	SELF RECORDING (VHS MODE)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	A = 1.0 +- 0.05Vp-p B = 0.5 +- 0.15Vp-p	

(1) Record the colour bar signal.
(2) Connect the oscilloscope to TP3002.
(3) Adjust the VR3007 so that level become A = 1.0 +- 0.05Vp-p B = 0.6 +- 0.15Vp-p

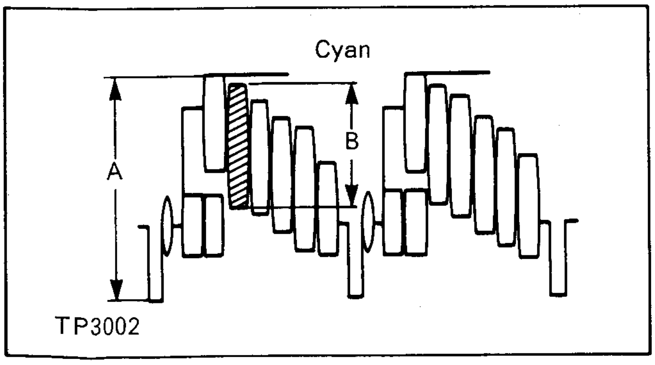


Fig. E13

13. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3002	VR3010	SELF RECORDING	COLOUR BAR (B/W SIG. MODE)
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	A = 1.0 +- 0.05Vp-p	

(1) Set the unit to S-VHS mode.
(2) Play back the just recorded portion.
(3) Connect the scope to TP3002.
(4) Adjust VR3010 so that the level become A = 1.0 +- 0.05 Vp-p.

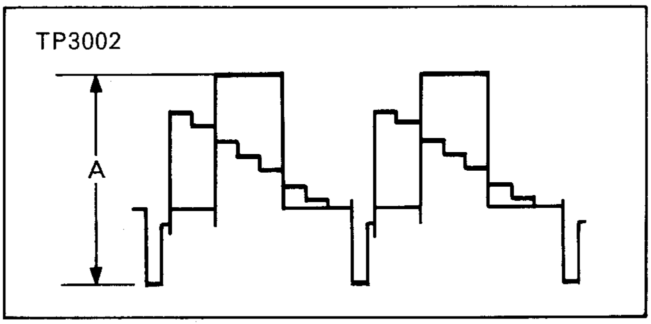


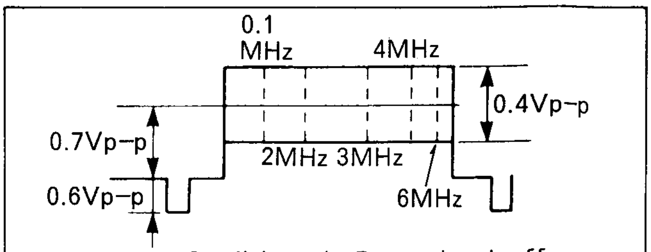
Fig. E14

14. HEAD AMP FREQUENCY RESPONCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3010 (OR Y OUTPUT AT S TERMINAL)	VR5001	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	0.1MHz:4MHz=5:3 AS SHOWN IN Fig.E17	

Note: Edit switch must be off.
Set the S-VHS/VHS switch for S-VHS.

(1) Set the sweep generator output as shown below.



Condition: 1. Burst signal off

Fig. E15

(2) Connect the jumper wire between P6011–5 and GND as shown in Fig. E1.

(3) Supply the sweep signal IC3001–4 through capacitor (25V,0.47uF) and resistor (75 ohm) as shown below.

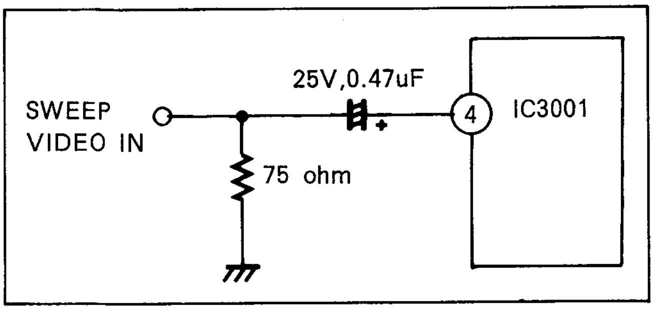


Fig. E16

(4) Record the sweep signal for a few miutes.

(5) Play back just recorded portion.

(6) Adjust the head amp freq. control (VR5001) so that the waveform is as shown below.

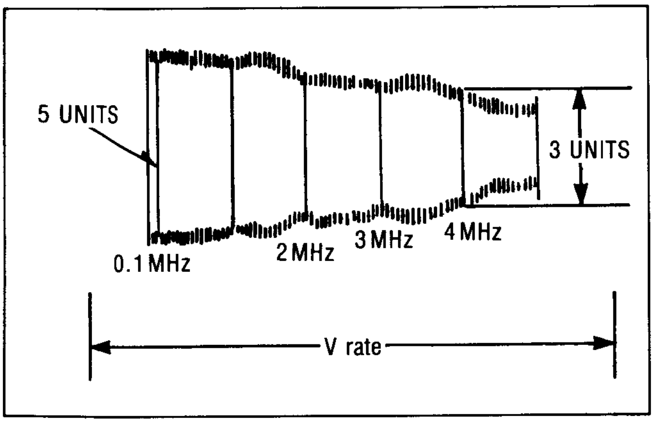


Fig. E17

AUDIO SECTION

15. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	C4002	REC /PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	2.9mVrms +– 0.1mVrms	

16. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT (TP4001)	VR4001	SELF RECORDING	1KHz AUDIO –60dB SIGNAL/ MIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GEBERA–TOR/D.V.M.	EE LEVEL= –8.0+–2dB P.B LEVEL= –8.0+–1dB	

SYSTEM CONTROL SECTION

17. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIEW FINDER	VR6001	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	VIEW FINDER	CHARACTER IS CENTRE	

(1) Connect the EVF unit to the VTR unit.

(2) Display the battery remaining indicator and counter number on the EVF.

(3) Adjust the osc control (VR6001) so that the character position is shown below.

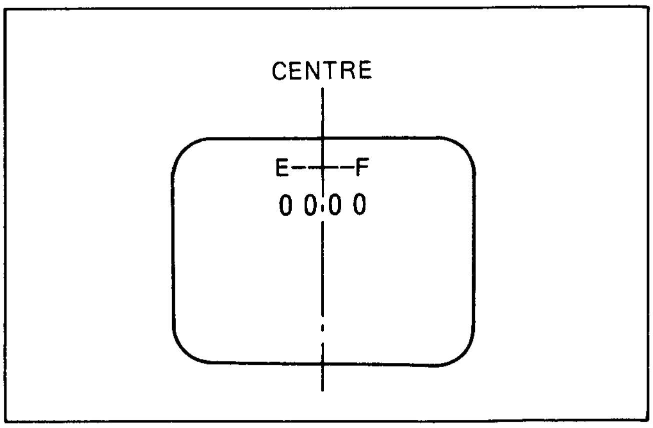
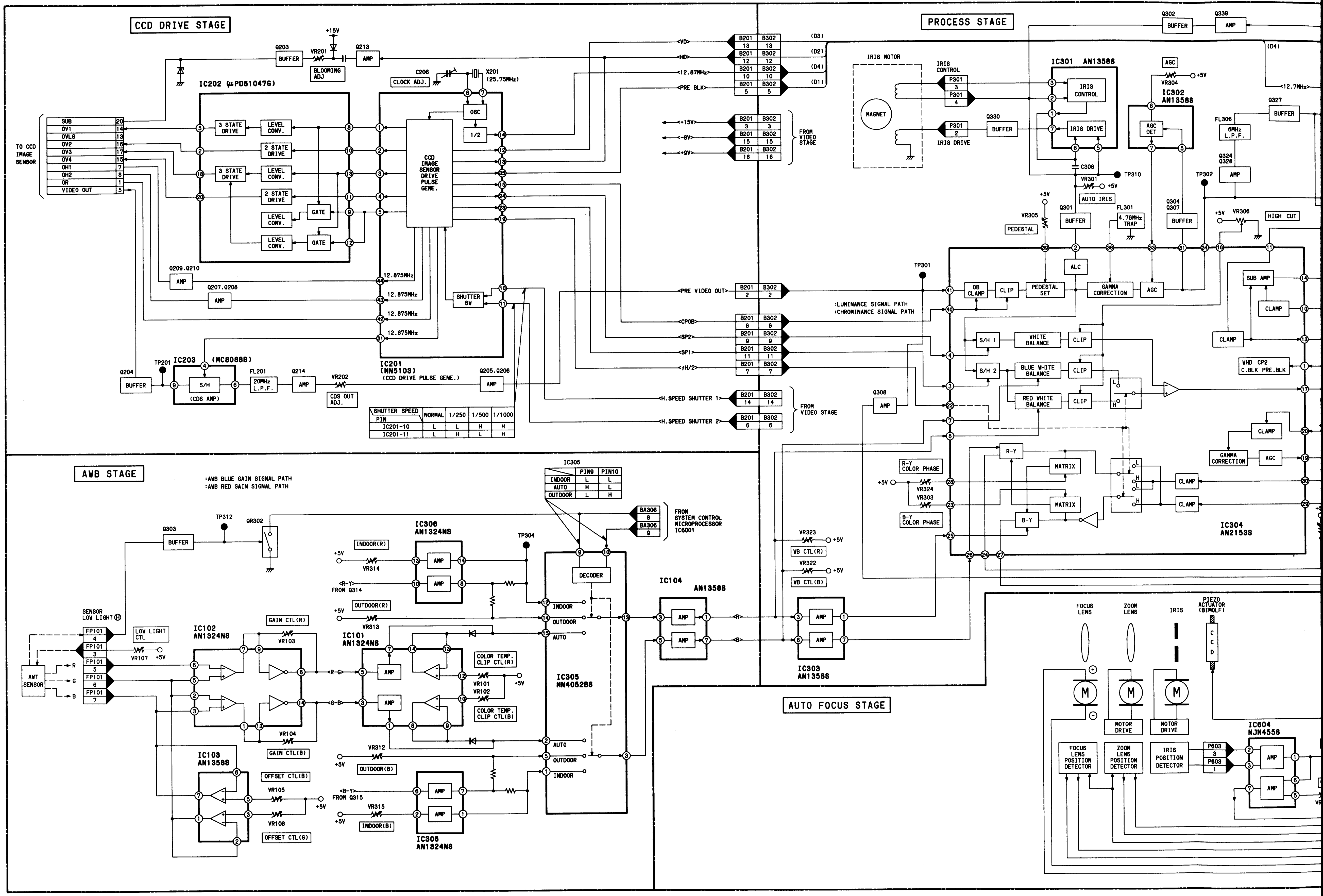


Fig. E18

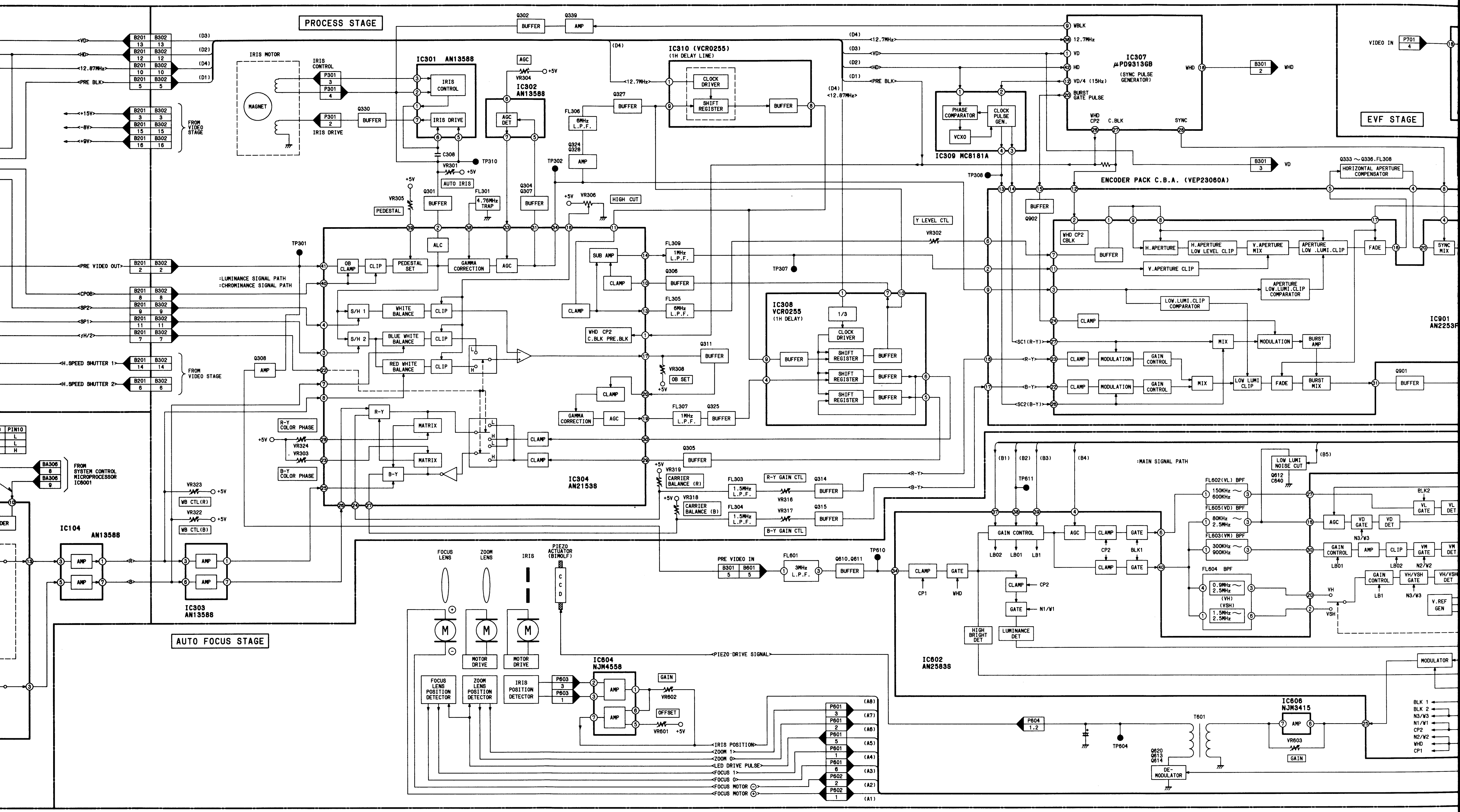
SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS
3-1. CAMERA STAGE BLOCK DIAGRAM

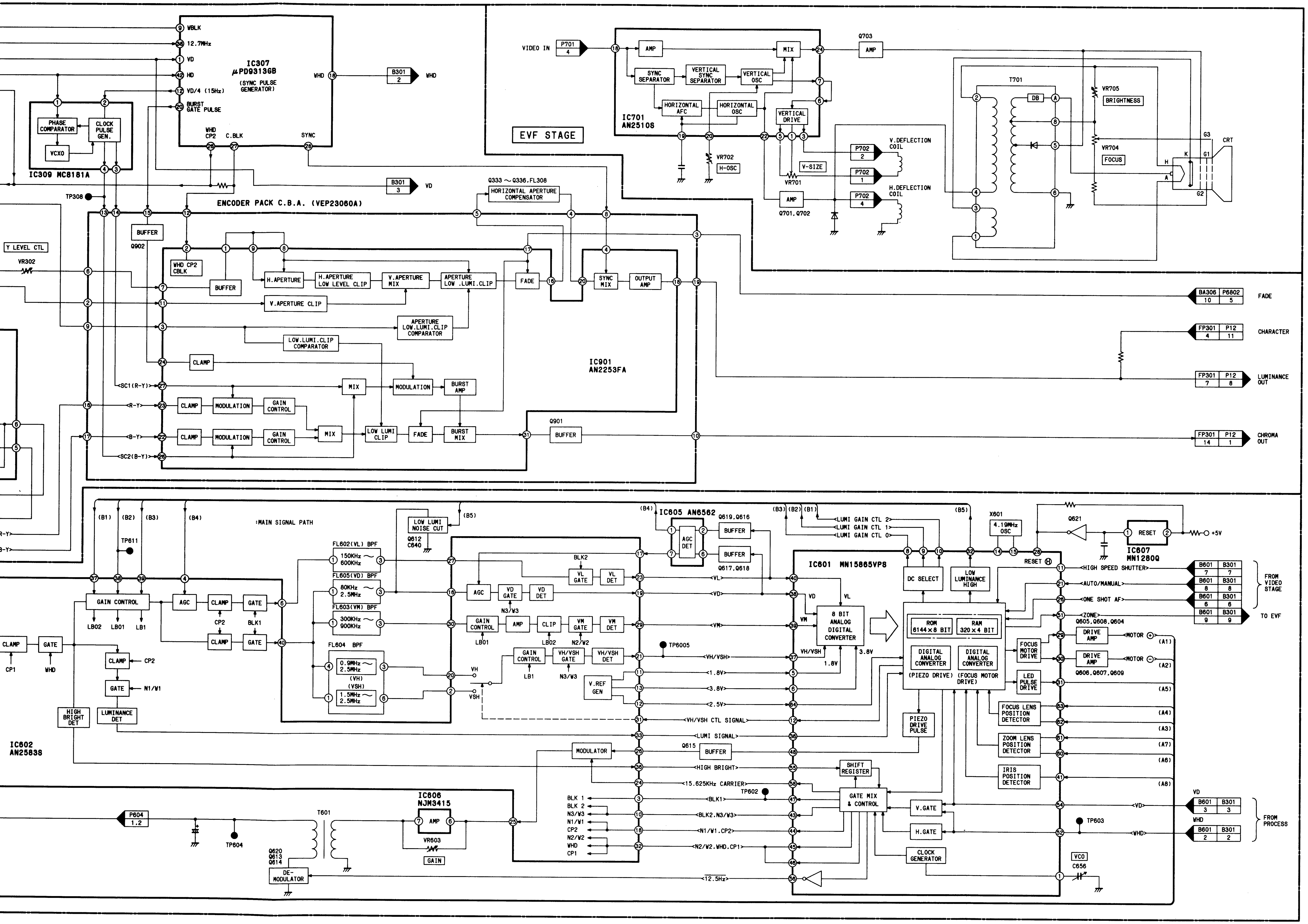

CCD DRIVE STAGE
PROCESS STAGE
AWB STAGE
AUTO FOCUS STAGE
TO CCD IMAGE SENSOR
SUB
OV1
OVLG
OV2
OV3
OV4
OH1
OH2
OR
VIDEO OUT
IC202 (μPD6104 76)
3 STATE DRIVE
LEVEL CONV.
2 STATE DRIVE
GATE
Q203
BUFFER
VR201
BLOOMING ADJ
Q213
AMP
+15V
C206
CLOCK ADJ.
X201 (25.75MHz)
OSC
1/2
CCD IMAGE SENSOR DRIVE PULSE GENE.
SHUTTER SW
IC201 (MN5103)
(CCD DRIVE PULSE GENE.)
12.875MHz
Q209,Q210
Q207,Q208
Q204
BUFFER
TP201
IC203 (MC8086B)
S/H
(CDS AMP)
FL201
20MHz L.P.F.
Q214
VR202
CDS OUT ADJ.
Q205,Q206
<VD>
<HD>
<12.87MHz>
<PRE BLK>
<+15V>
<-8V>
<+9V>
FROM VIDEO STAGE
<PRE VIDEO OUT>
<CPOB>
<SP2>
<SP1>
<fH/2>
<H.SPEED SHUTTER 1>
<H.SPEED SHUTTER 2>
B201
B302
(D3)
(D2)
(D4)
(D1)
:LUMINANCE SIGNAL PATH
:CHROMINANCE SIGNAL PATH
IRIS MOTOR
MAGNET
IRIS CONTROL
P301
IRIS DRIVE
Q330
BUFFER
IC301 AN13588
IRIS CONTROL
IRIS DRIVE
C308
VR301
AUTO IRIS
TP310
AGC
VR304
IC302 AN13588
AGC DET
Q302
Q339
FL306
6MHz L.P.F.
Q324 Q328
Q327
BUFFER
<12.7MHz>
TP302
VR305
PEDESTAL
Q301
BUFFER
FL301
4.76MHz TRAP
Q304 Q307
VR306
HIGH CUT
ALC
TP301
OB CLAMP
CLIP
PEDESTAL SET
GAMMA CORRECTION
SUB AMP
CLAMP
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
WHD CP2 C.BLK PRE.BLK
Q308
R-Y
B-Y
MATRIX
R-Y COLOR PHASE
B-Y COLOR PHASE
VR324
VR303
IC304 AN21538
VR323
WB CTL(R)
VR322
WB CTL(B)
IC303 AN13588
:AWB BLUE GAIN SIGNAL PATH
:AWB RED GAIN SIGNAL PATH
Q303
BUFFER
TP312
QR302
SENSOR LOW LIGHT (H)
FP101
LOW LIGHT CTL
VR107
AWT SENSOR
IC102 AN1324NS
GAIN CTL(R)
VR103
VR104
GAIN CTL(B)
IC101 AN1324NS
COLOR TEMP. CLIP CTL(R)
VR101
VR102
COLOR TEMP. CLIP CTL(B)
IC103 AN13588
OFFSET CTL(B)
VR105
VR106
OFFSET CTL(G)
IC306 AN1324NS
INDOOR(R)
VR314
<R-Y> FROM Q314
OUTDOOR(R)
VR313
VR312
OUTDOOR(B)
<B-Y> FROM Q315
VR315
INDOOR(B)
TP304
IC305 MN4052BS
DECODER
INDOOR
OUTDOOR
AUTO
BA306
FROM SYSTEM CONTROL MICROPROCESSOR IC6001
IC104 AN13588
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
CCD
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
P603
IC604 NJM4558

SHUTTER SPEED / PIN	NORMAL	1/250	1/500	1/1000
IC201-10	L	L	H	H
IC201-11	L	H	L	H

IC305

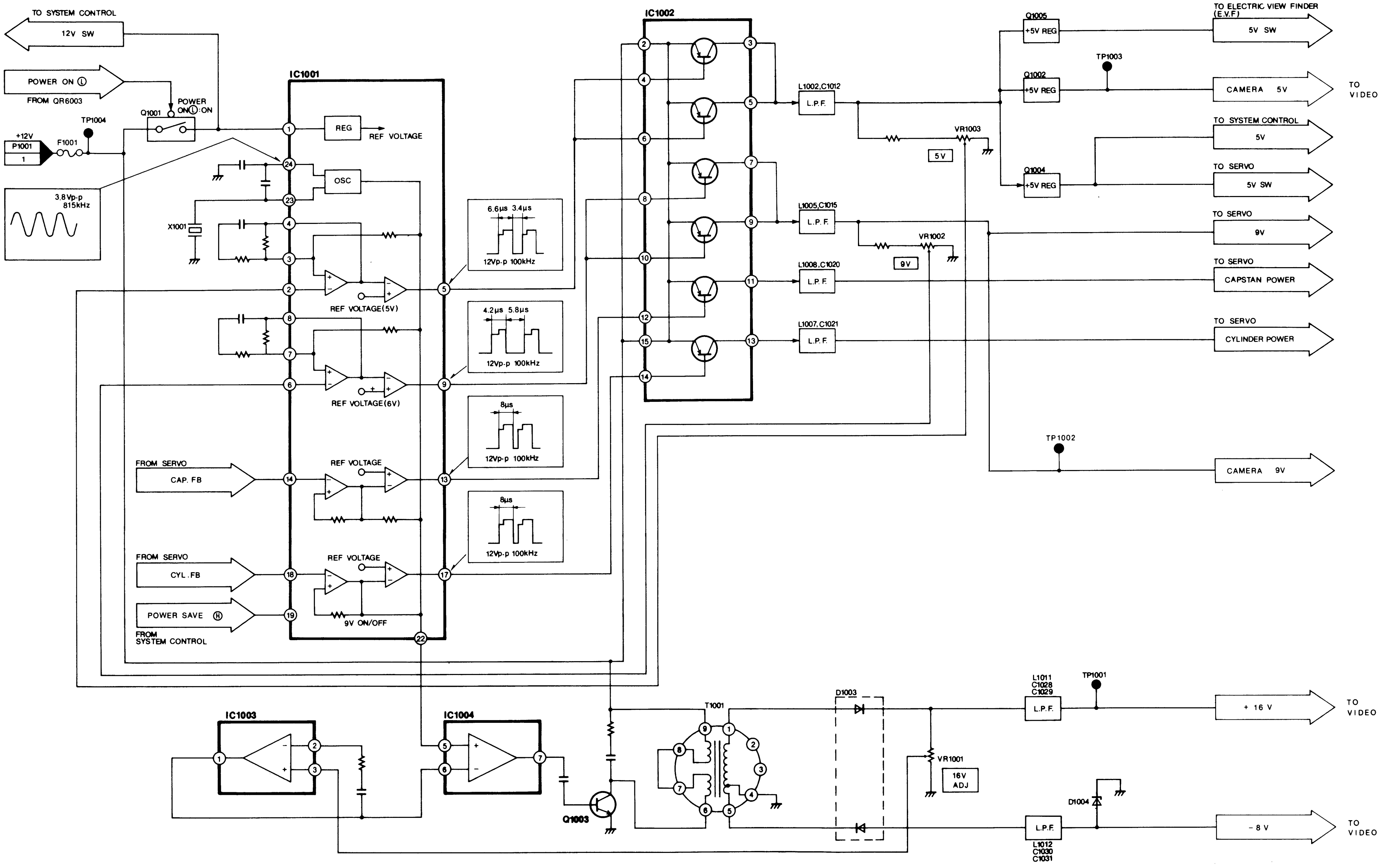
	PIN9	PIN10
INDOOR	L	L
AUTO	H	L
OUTDOOR	L	H


PROCESS STAGE
AUTO FOCUS STAGE
EVF STAGE
IRIS MOTOR
MAGNET
IRIS CONTROL
IRIS DRIVE
IC301 AN13588
IRIS CONTROL
IRIS DRIVE
C306
TP310
VR301
AUTO IRIS
IC302 AN13588
AGC DET
AGC
VR304
Q302 BUFFER
Q339 AMP
Q330 BUFFER
Q301 BUFFER
FL301 4.76MHz TRAP
Q304 Q307 BUFFER
VR305
PEDESTAL
TP302
Q324 Q326 AMP
FL306 6MHz L.P.F.
Q327 BUFFER
VR306
HIGH CUT
IC310 (VCR0255) (1H DELAY LINE)
CLOCK DRIVER
SHIFT REGISTER
BUFFER
TP301
OB CLAMP
CLIP
PEDESTAL SET
ALC
GAMMA CORRECTION
AGC
SUB AMP
CLAMP
:LUMINANCE SIGNAL PATH
:CHROMINANCE SIGNAL PATH
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
CLIP
Q308 AMP
R-Y
B-Y
MATRIX
R-Y COLOR PHASE
B-Y COLOR PHASE
VR324
VR303
IC304 AN21538
FL309 1MHz L.P.F.
Q306 BUFFER
FL305 6MHz L.P.F.
WHD CP2 C.BLK PRE.BLK
Q311 BUFFER
VR308
OB SET
GAMMA CORRECTION
FL307 1MHz L.P.F.
Q325 BUFFER
Q305 BUFFER
VR319
CARRIER BALANCE (R)
VR318
CARRIER BALANCE (B)
FL303 1.5MHz L.P.F.
FL304 1.5MHz L.P.F.
R-Y GAIN CTL
B-Y GAIN CTL
VR316
VR317
Q314 BUFFER
Q315 BUFFER
TP307
IC308 VCR0255 (1H DELAY)
1/3
CLOCK DRIVER
SHIFT REGISTER
BUFFER
VR323
WB CTL(R)
VR322
WB CTL(B)
IC104 AN13588
IC303 AN13588
AMP
FROM VIDEO STAGE
FROM SYSTEM CONTROL MICROPROCESSOR IC6001
<VD>
<HD>
<12.87MHz>
<PRE BLK>
<+15V>
<-8V>
<+9V>
<PRE VIDEO OUT>
<CPOB>
<SP2>
<SP1>
<fH/2>
<H.SPEED SHUTTER 1>
<H.SPEED SHUTTER 2>
B201
B302
BA306
P301
PIN10
IC307 μPD9313GB (SYNC PULSE GENERATOR)
VBLK
12.7MHz
VD
HD
VD/4 (15Hz)
BURST GATE PULSE
WHD CP2
C.BLK
SYNC
WHD
B301
IC309 MC6181A
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
TP308
ENCODER PACK C.B.A. (VEP23060A)
Q333 ~ Q336.FL308
HORIZONTAL APERTURE COMPENSATOR
BUFFER
Q902
Y LEVEL CTL
VR302
WHD CP2 CBLK
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW .LUMI.CLIP
FADE
SYNC MIX
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
CLAMP
MIX
MODULATION
BURST AMP
GAIN CONTROL
LOW LUMI CLIP
BURST MIX
Q901 BUFFER
IC901 AN2253F
<SC1(R-Y)>
<R-Y>
<B-Y>
<SC2(B-Y)>
VIDEO IN
P701
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
CCD
M
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
P603
IC604 NJM4558
GAIN
VR602
OFFSET
VR601
<PIEZO DRIVE SIGNAL>
<IRIS POSITION>
<ZOOM 1>
<ZOOM 0>
<LED DRIVE PULSE>
<FOCUS 1>
<FOCUS 0>
<FOCUS MOTOR ⊖>
<FOCUS MOTOR ⊕>
P601
P602
(A1) (A2) (A3) (A4) (A5) (A6) (A7) (A8)
PRE VIDEO IN
B601
FL601 3MHz L.P.F.
Q610,Q611 BUFFER
TP610
CLAMP
GATE
CP1
WHD
(B1) (B2) (B3) (B4) (B5)
TP611
:MAIN SIGNAL PATH
LOW LUMI NOISE CUT
Q612 C640
GAIN CONTROL
LB02 LB01 LB1
AGC
CP2
BLK1
CLAMP
GATE
CP2
N1/W1
HIGH BRIGHT DET
LUMINANCE DET
FL602(VL) BPF 150KHz ~ 600KHz
FL605(VD) BPF 80KHz ~ 2.5MHz
FL603(VM) BPF 300KHz ~ 900KHz
FL604 BPF 0.9MHz ~ 2.5MHz (VH) (VSH) 1.5MHz ~ 2.5MHz
VH
VSH
BLK2
VL GATE
VL DET
VD GATE
VD DET
N3/W3
AMP
CLIP
VM GATE
VM DET
N2/W2
GAIN CONTROL
VH/VSH GATE
VH/VSH DET
V.REF GEN
IC602 AN2583S
MODULATOR
BLK 1
BLK 2
N3/W3
N1/W1
CP2
N2/W2
WHD
CP1
P604
TP604
T601
Q620 Q613 Q614
DE-MODULATOR
IC606 NJM3415
AMP
VR603
GAIN


IC307
μPD9313GB
(SYNC PULSE GENERATOR)
VBLK
12.7MHz
VD
HD
VD/4 (15Hz)
BURST GATE PULSE
WHD
WHD CP2
C.BLK
SYNC
B301 2
B301 3
IC309 MC8181A
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
TP308
ENCODER PACK C.B.A. (VEP23060A)
Y LEVEL CTL
VR302
BUFFER
Q902
WHD CP2 CBLK
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW .LUMI.CLIP
FADE
SYNC MIX
OUTPUT AMP
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
CLAMP
MIX
MODULATION
BURST AMP
GAIN CONTROL
LOW LUMI CLIP
BURST MIX
Q901
IC901
AN2253FA
Q333 ~ Q336.FL308
HORIZONTAL APERTURE COMPENSATOR
SC1(R-Y)
R-Y
B-Y
SC2(B-Y)
EVF STAGE
VIDEO IN
P701 4
IC701
AN2510S
AMP
MIX
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
VR702
H-OSC
V-SIZE
VR701
Q701.Q702
Q703
P702 2
P702 1
P702 4
V.DEFLECTION COIL
H.DEFLECTION COIL
T701
DB
VR705
BRIGHTNESS
VR704
FOCUS
CRT
G1
G2
G3
K
H
A
BA306 10
P6602 5
FADE
FP301 4
P12 11
CHARACTER
FP301 7
P12 8
LUMINANCE OUT
FP301 14
P12 1
CHROMA OUT
(B1) (B2) (B3) (B4)
:MAIN SIGNAL PATH
TP611
GAIN CONTROL
LB02 LB01 LB1
AGC
CP2
BLK1
GATE
CP1
WHD
N1/W1
LUMINANCE DET
HIGH BRIGHT DET
IC602
AN2583S
LOW LUMI NOISE CUT
Q612 C640
(B5)
FL602(VL) BPF
150KHz 600KHz
FL605(VD) BPF
80KHz 2.5MHz
FL603(VM) BPF
300KHz 900KHz
FL604 BPF
0.9MHz 2.5MHz
(VH)
(VSH)
1.5MHz 2.5MHz
BLK2
VL GATE
VL DET
VD GATE
VD DET
N3/W3
GAIN CONTROL
LB01
LB02
CLIP
VM GATE
VM DET
N2/W2
VH/VSH GATE
VH/VSH DET
LB1
V.REF GEN
VH
VSH
TP6005
IC605 AN6562
AGC DET
BUFFER
Q619.Q616
Q617.Q618
<VL>
<VD>
<VM>
<VH/VSH>
<1.8V>
<3.8V>
<2.5V>
<VH/VSH CTL SIGNAL>
<LUMI SIGNAL>
<HIGH BRIGHT>
<15.625KHz CARRIER>
<BLK1>
<BLK2.N3/W3>
<N1/W1.CP2>
<N2/W2.WHD.CP1>
<12.5Hz>
MODULATOR
Q615
TP602
BLK 1
BLK 2
N3/W3
N1/W1
CP2
N2/W2
WHD
CP1
P604 1.2
TP604
T601
Q620 Q613 Q614
DE-MODULATOR
IC606
NJM3415
AMP
VR603
GAIN
<LUMI GAIN CTL 2>
<LUMI GAIN CTL 1>
<LUMI GAIN CTL 0>
IC601 MN15865VPS
DC SELECT
LOW LUMINANCE HIGH
VD VL VM VH/VSH
8 BIT ANALOG DIGITAL CONVERTER
1.8V 3.8V
ROM 6144×8 BIT
RAM 320×4 BIT
DIGITAL ANALOG CONVERTER
(PIEZO DRIVE)
(FOCUS MOTOR DRIVE)
PIEZO DRIVE PULSE
SHIFT REGISTER
GATE MIX & CONTROL
V.GATE
H.GATE
CLOCK GENERATOR
FOCUS MOTOR DRIVE
LED PULSE DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
X601
4.19MHz OSC
Q621
RESET
IC607
MN1280Q
RESET Ⓗ
+5V
<HIGH SPEED SHUTTER>
<AUTO/MANUAL>
<ONE SHOT AF>
<ZONE>
Q605.Q608.Q604
DRIVE AMP
<MOTOR ⊕>
<MOTOR ⊖>
Q606.Q607.Q609
(A1) (A2) (A5) (A4) (A3) (A7) (A6) (A8)
B601 7 B301 7
B601 8 B301 8
B601 6 B301 6
B601 9 B301 9
FROM VIDEO STAGE
TO EVF
<VD>
<WHD>
B601 3 B301 3
B601 2 B301 2
TP603
FROM PROCESS
VCO
C656

Next Page:
POWER SUPPLY &
SYSTEM CONTROL Section

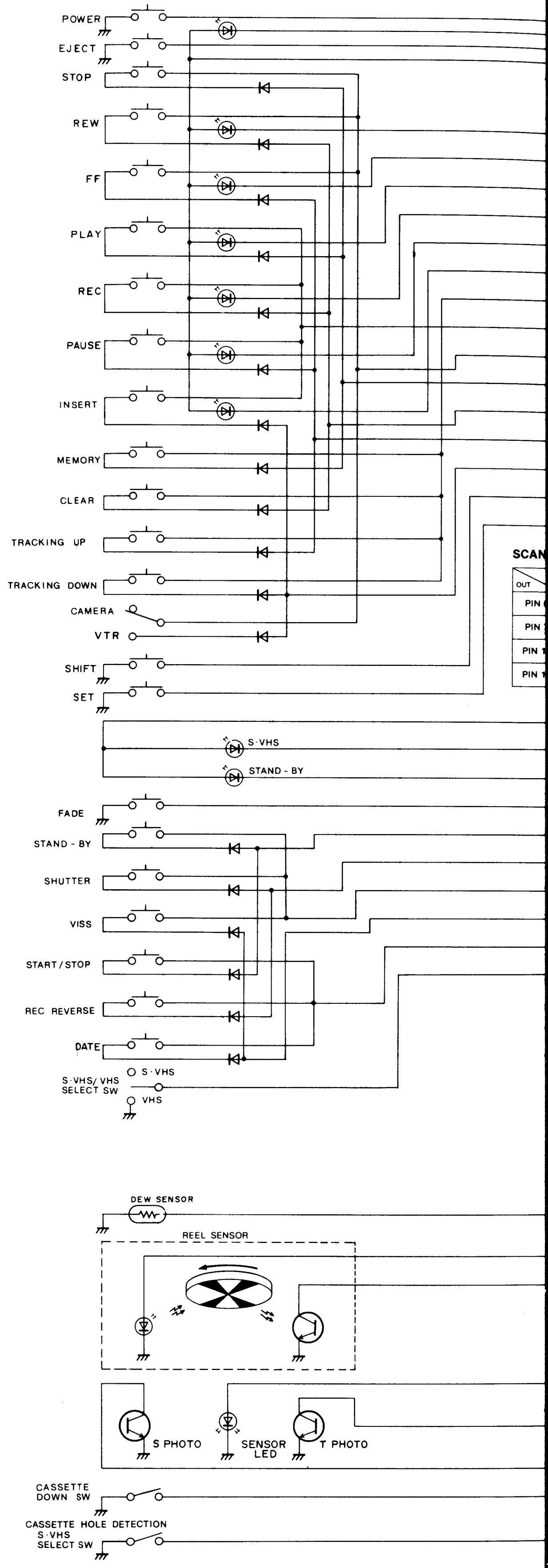
3-2. POWER SUPPLY BLOCK DIAGRAM


TO SYSTEM CONTROL
12V SW
POWER ON Ⓛ
FROM QR6003
Q1001
POWER ONⓁ:ON
TP1004
+12V
P1001
1
F1001
3.8Vp-p
815kHz
IC1001
REG
REF VOLTAGE
OSC
X1001
REF VOLTAGE(5V)
REF VOLTAGE(6V)
6.6μs 3.4μs
12Vp-p 100kHz
4.2μs 5.8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
FROM SERVO
CAP. FB
REF VOLTAGE
FROM SERVO
CYL.FB
REF VOLTAGE
POWER SAVE Ⓗ
FROM SYSTEM CONTROL
9V ON/OFF
IC1002
L1002,C1012
L.P.F.
L1005,C1015
L.P.F.
L1008,C1020
L.P.F.
L1007,C1021
L.P.F.
VR1003
5V
VR1002
9V
Q1005
+5V REG
Q1002
+5V REG
Q1004
+5V REG
TP1003
TP1002
TO ELECTRIC VIEW FINDER (E.V.F)
5V SW
CAMERA 5V
TO VIDEO
TO SYSTEM CONTROL
5V
TO SERVO
5V SW
TO SERVO
9V
TO SERVO
CAPSTAN POWER
TO SERVO
CYLINDER POWER
CAMERA 9V
IC1003
IC1004
Q1003
T1001
D1003
VR1001
16V ADJ
L1011
C1028
C1029
L.P.F.
TP1001
+16 V
TO VIDEO
D1004
L.P.F.
L1012
C1030
C1031
-8 V
TO VIDEO

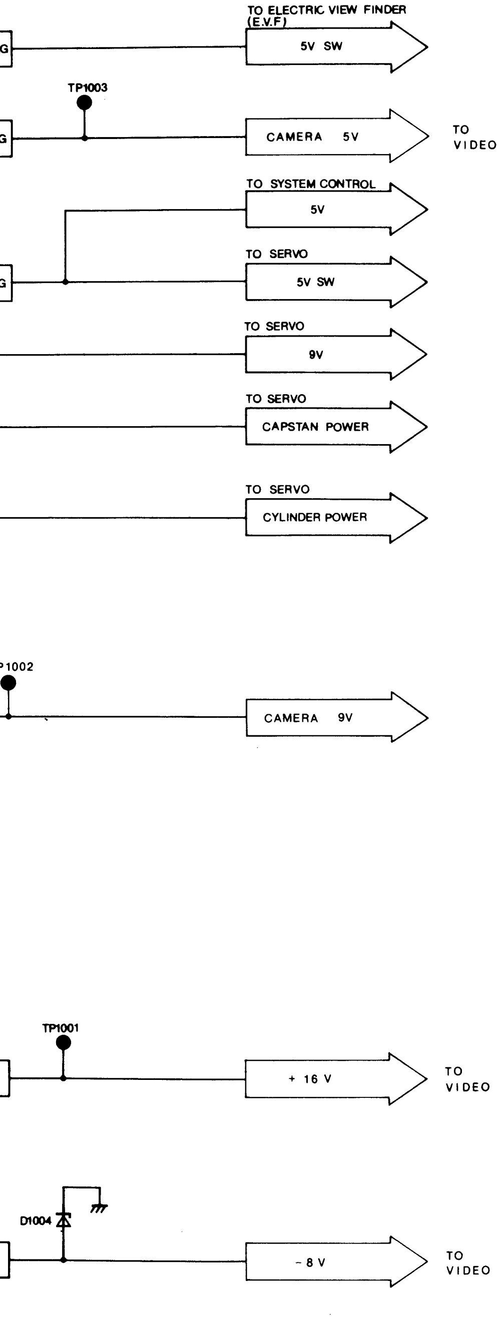
3-3. SYSTEM CONTROL BLOCK DIAGRAM

MICROCOMPUTER I/O CHART
(IC6001: MN15361VNU)

PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND-BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ/LP Ⓛ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED

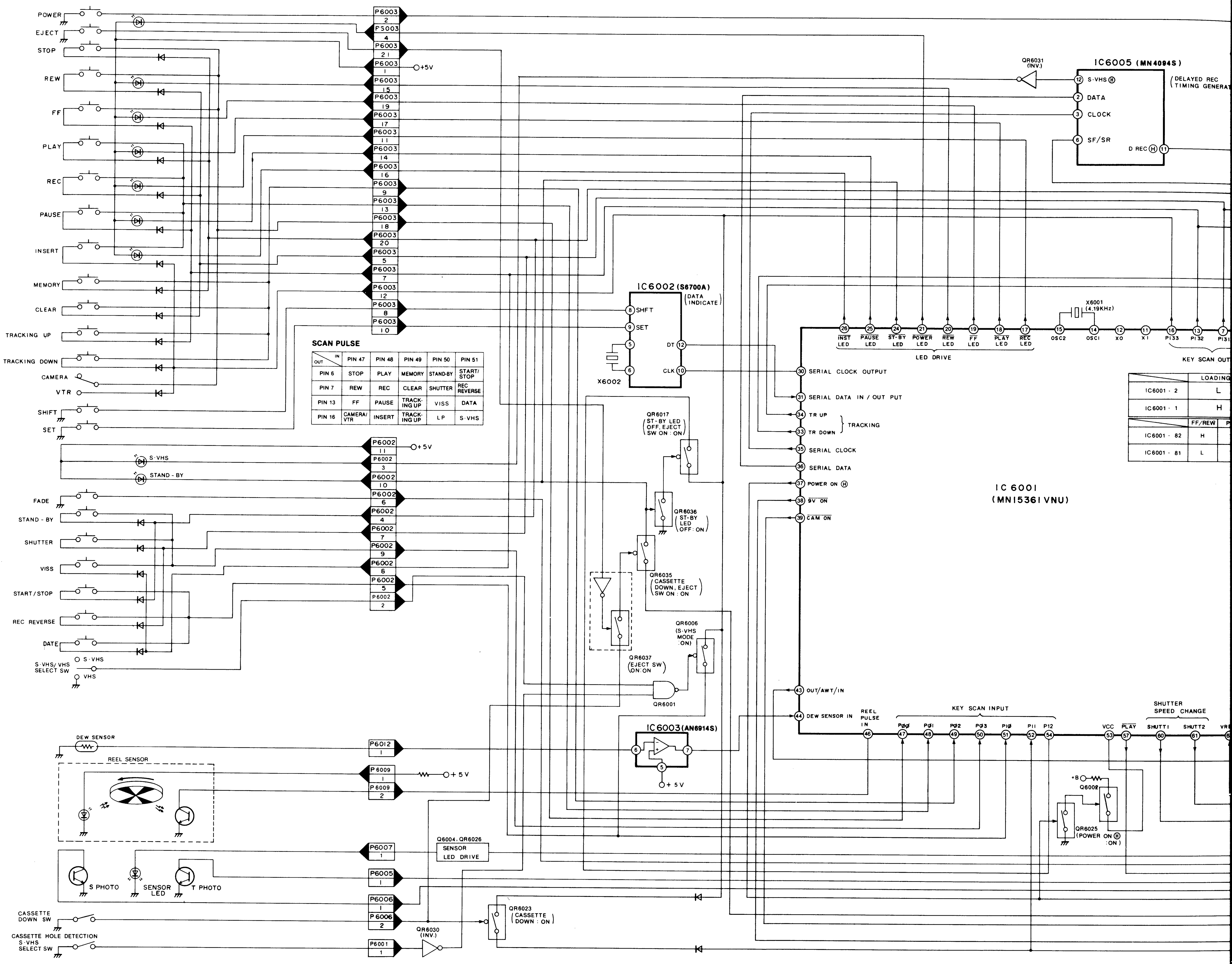

POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
SCAN
OUT
PIN
PIN
PIN
PIN
S·VHS
STAND - BY
FADE
STAND - BY
SHUTTER
VISS
START/STOP
REC REVERSE
DATE
S·VHS
S·VHS/ VHS SELECT SW
VHS
DEW SENSOR
REEL SENSOR
S PHOTO
SENSOR LED
T PHOTO
CASSETTE DOWN SW
CASSETTE HOLE DETECTION S·VHS SELECT SW

3-3. SYSTEM CONTROL BLOCK DIAGRAM


TO ELECTRIC VIEW FINDER (E.V.F)
5V SW
TP1003
CAMERA 5V
TO VIDEO
TO SYSTEM CONTROL
5V
TO SERVO
5V SW
TO SERVO
9V
TO SERVO
CAPSTAN POWER
TO SERVO
CYLINDER POWER
TP1002
CAMERA 9V
TP1001
+ 16 V
TO VIDEO
D1004
- 8 V
TO VIDEO

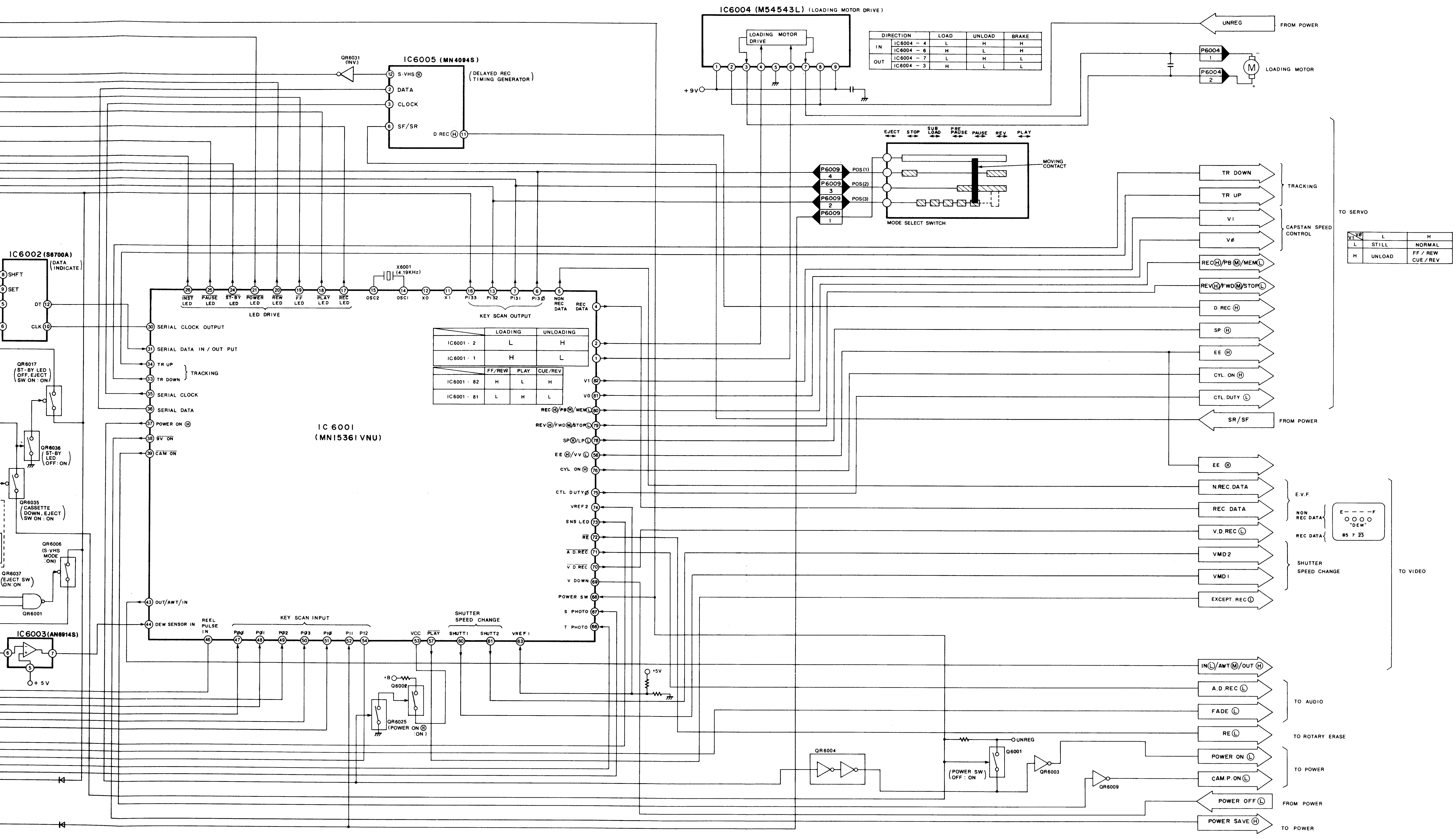
MICROCOMPUTER I/O CHART
(IC6001: MN15361VNU)

PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND-BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ/LP Ⓛ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED


POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
S-VHS
STAND-BY
FADE
STAND-BY
SHUTTER
VISS
START/STOP
REC REVERSE
DATE
S-VHS/VHS SELECT SW
S-VHS
VHS
P6003
P6002
+5V
IC6002 (S6700A)
(DATA INDICATE)
SHFT
SET
DT
CLK
X6002
QR6017 (ST-BY LED OFF, EJECT SW ON : ON)
QR6036 (ST-BY LED OFF : ON)
QR6035 (CASSETTE DOWN, EJECT SW ON : ON)
QR6006 (S-VHS MODE : ON)
QR6037 (EJECT SW ON : ON)
QR6001
QR6031 (INV.)
IC6005 (MN4094S)
S-VHS Ⓗ
DATA
CLOCK
SF/SR
D REC Ⓗ
(DELAYED REC TIMING GENERAT
X6001 (4.19KHz)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSC1
XO
XI
P133
P132
P131
KEY SCAN OUT
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
IC 6001 (MN15361VNU)
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
KEY SCAN INPUT
VCC
PLAY
SHUTTER SPEED CHANGE
SHUTT1
SHUTT2
LOADING
IC6001 - 2
IC6001 - 1
FF/REW
IC6001 - 82
IC6001 - 81
L
H
H
L
DEW SENSOR
REEL SENSOR
P6012
P6009
+ 5 V
IC6003 (AN6914S)
P6007
P6005
P6006
P6001
Q6004, QR6026
SENSOR LED DRIVE
S PHOTO
SENSOR LED
T PHOTO
CASSETTE DOWN SW
CASSETTE HOLE DETECTION S-VHS SELECT SW
QR6030 (INV.)
QR6023 (CASSETTE DOWN : ON)
+B
Q6002
QR6025 (POWER ON Ⓗ : ON)

SCAN PULSE

OUT \ IN	PIN 47	PIN 48	PIN 49	PIN 50	PIN 51
PIN 6	STOP	PLAY	MEMORY	STAND-BY	START/ STOP
PIN 7	REW	REC	CLEAR	SHUTTER	REC REVERSE
PIN 13	FF	PAUSE	TRACK-ING UP	VISS	DATA
PIN 16	CAMERA/ VTR	INSERT	TRACK-ING UP	LP	S·VHS


IC6004 (M54543L) (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
+9V
UNREG
FROM POWER
P6004 1
P6004 2
M
LOADING MOTOR
IC6005 (MN4094S)
(DELAYED REC TIMING GENERATOR)
QR6031 (INV.)
S-VHS Ⓗ
DATA
CLOCK
SF/SR
D REC Ⓗ
EJECT
STOP
SUB LOAD
PRE PAUSE
PAUSE
REV
PLAY
MOVING CONTACT
P6009 4
P6009 3
P6009 2
P6009 1
POS(1)
POS(2)
POS(3)
MODE SELECT SWITCH
TR DOWN
TR UP
TRACKING
V1
VØ
CAPSTAN SPEED CONTROL
TO SERVO
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
D. REC Ⓗ
SP Ⓗ
EE Ⓗ
CYL. ON Ⓗ
CTL. DUTY Ⓛ
SR/SF
FROM POWER
EE Ⓗ
N.REC.DATA
REC DATA
E.V.F.
NON REC DATA
REC DATA
E - - - - F
"DEW"
85 7 23
V.D.REC Ⓛ
VMD2
VMD1
SHUTTER SPEED CHANGE
TO VIDEO
EXCEPT. REC Ⓛ
IN Ⓛ/AWT Ⓜ/OUT Ⓗ
A.D.REC Ⓛ
FADE Ⓛ
TO AUDIO
RE Ⓛ
TO ROTARY ERASE
POWER ON Ⓛ
CAM.P.ON Ⓛ
TO POWER
POWER OFF Ⓛ
FROM POWER
POWER SAVE Ⓗ
TO POWER
IC6002 (S6700A)
(DATA INDICATE)
SHFT
SET
DT
CLK
QR6017 (ST-BY LED OFF, EJECT SW ON : ON)
QR6036 (ST-BY LED OFF : ON)
QR6035 (CASSETTE DOWN, EJECT SW ON : ON)
QR6006 (S-VHS MODE :ON)
QR6037 (EJECT SW ON:ON)
QR6001
IC6003 (AN6914S)
+5V
IC 6001 (MN15361VNU)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSC1
XO
X1
X6001 (4.19KHz)
PI33
PI32
PI31
PI3Ø
KEY SCAN OUTPUT
NON REC DATA
REC DATA
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
PØØ
PØ1
PØ2
PØ3
P1Ø
P11
P12
KEY SCAN INPUT
VCC
PLAY
SHUTT1
SHUTT2
SHUTTER SPEED CHANGE
VREF1
V1
V0
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
SP Ⓗ/LP Ⓛ
EE Ⓗ/VV Ⓛ
CYL ON Ⓗ
CTL DUTYØ
VREF2
SNS LED
RE
A.D.REC
V.D.REC
V DOWN
POWER SW
S PHOTO
T PHOTO
+B
Q6002
QR6025 (POWER ON Ⓗ :ON)
+5V
QR6004
UNREG
Q6001
(POWER SW OFF : ON)
QR6003
QR6009

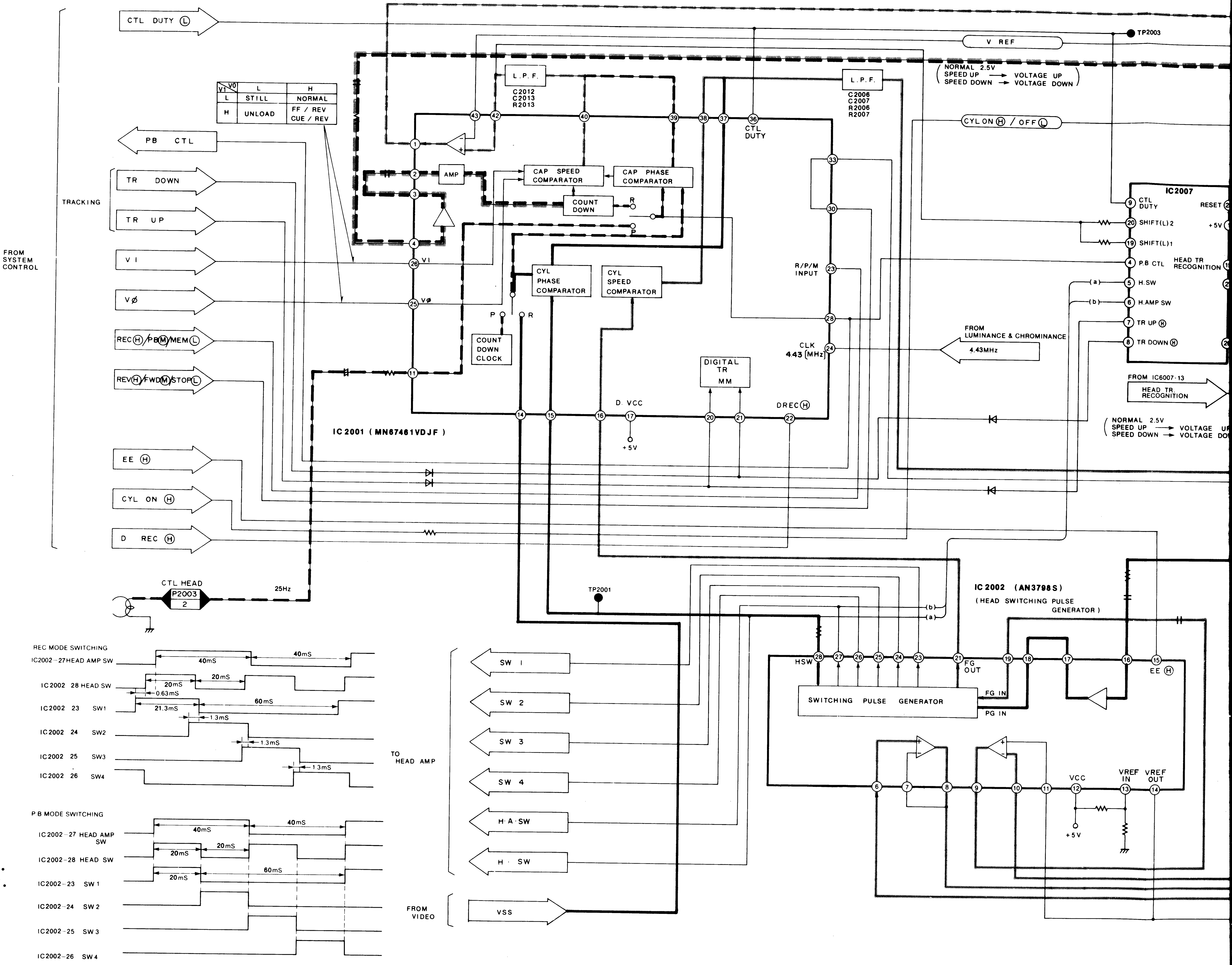
DIRECTION		LOAD	UNLOAD	BRAKE
IN	IC6004 – 4	L	H	H
	IC6004 – 6	H	L	H
OUT	IC6004 – 7	L	H	L
	IC6004 – 3	H	L	L

	LOADING	UNLOADING
IC6001 · 2	L	H
IC6001 · 1	H	L

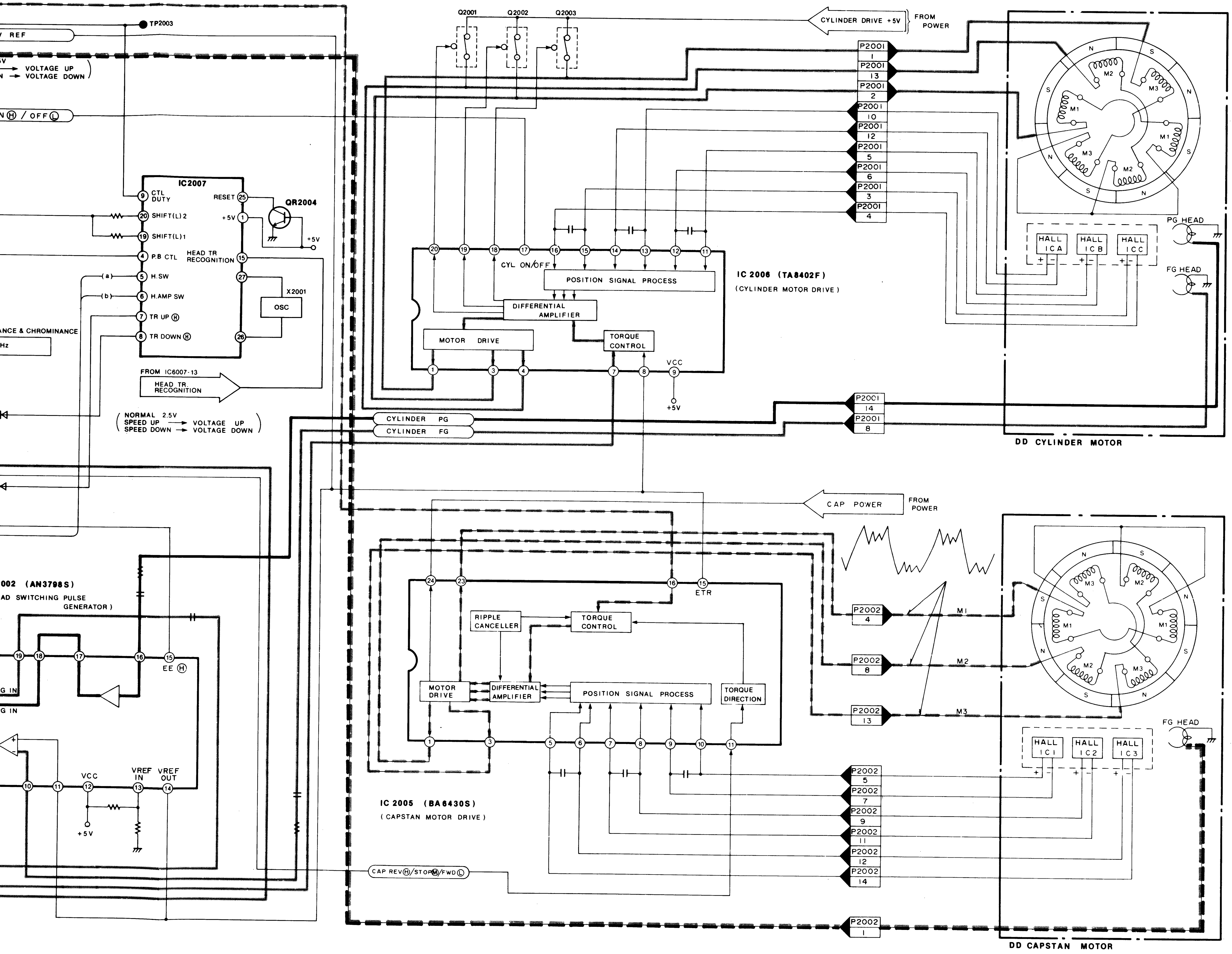
	FF/REW	PLAY	CUE/REV
IC6001 · 82	H	L	H
IC6001 · 81	L	H	L

V1 \ VØ	L	H
L	STILL	NORMAL
H	UNLOAD	FF / REW CUE / REV

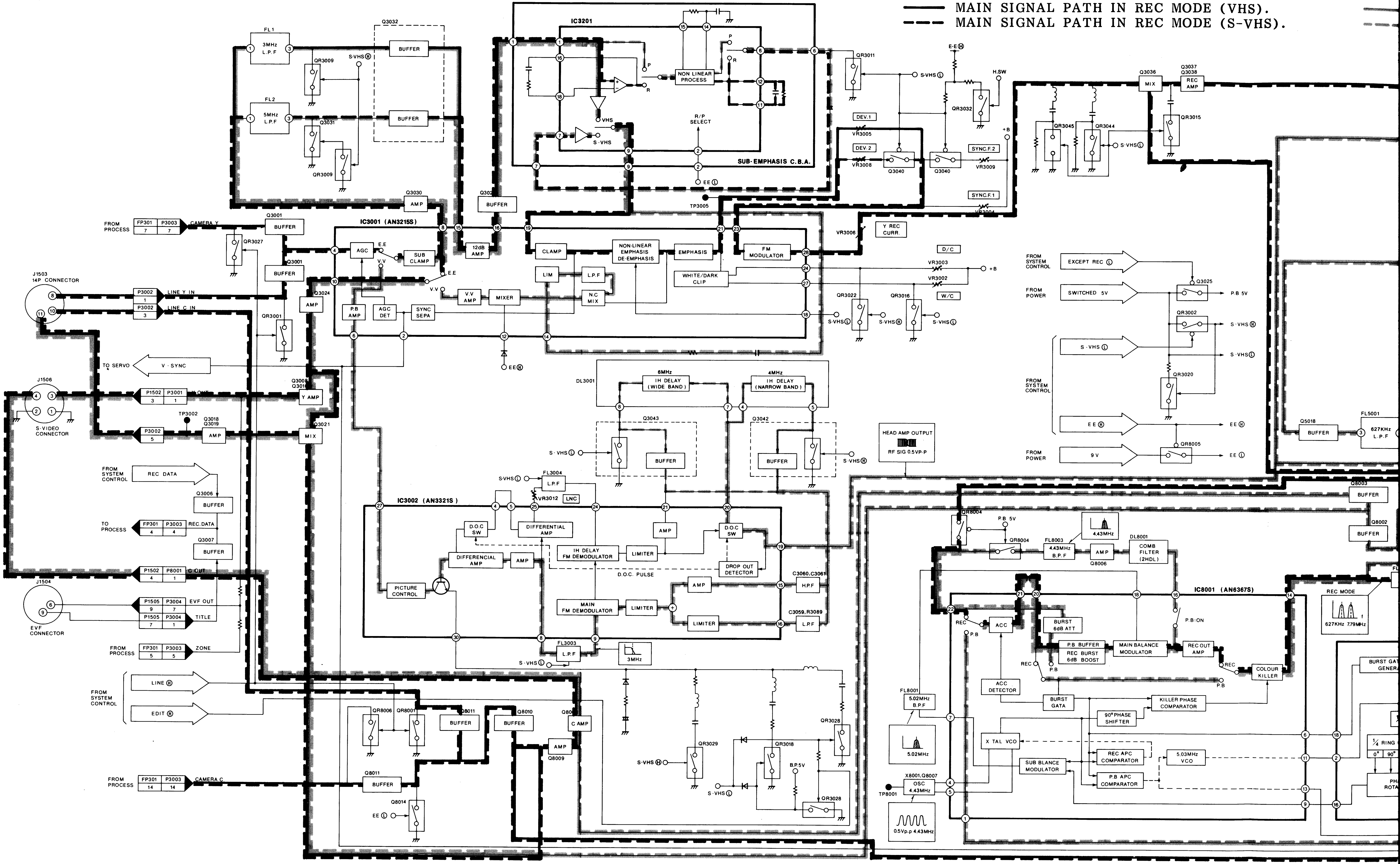
3-4. SERVO BLOCK DIAGRAM


CTL DUTY Ⓛ
PB CTL
TR DOWN
TR UP
TRACKING
FROM SYSTEM CONTROL
V I
Vø
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
EE Ⓗ
CYL ON Ⓗ
D REC Ⓗ
V0 V1
L H
L STILL NORMAL
H UNLOAD FF / REV CUE / REV
L.P.F.
C2012 C2013 R2013
AMP
CAP SPEED COMPARATOR
CAP PHASE COMPARATOR
COUNT DOWN
R
P
CYL PHASE COMPARATOR
CYL SPEED COMPARATOR
COUNT DOWN CLOCK
DIGITAL TR MM
D VCC
+5V
DREC Ⓗ
CLK 4.43 (MHz)
R/P/M INPUT
CTL DUTY
L.P.F.
C2006 C2007 R2006 R2007
IC 2001 (MN67461VDJF)
V REF
TP2003
NORMAL 2.5V
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
CYL ON Ⓗ / OFF Ⓛ
IC2007
CTL DUTY
RESET
SHIFT(L)2
SHIFT(L)1
+5V
P.B CTL
HEAD TR RECOGNITION
H.SW
H.AMP SW
TR UP Ⓗ
TR DOWN Ⓗ
FROM LUMINANCE & CHROMINANCE
4.43MHz
FROM IC6007-13
HEAD TR. RECOGNITION
NORMAL 2.5V
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
CTL HEAD
P2003
2
25Hz
TP2001
IC 2002 (AN3798S)
(HEAD SWITCHING PULSE GENERATOR)
HSW
FG OUT
EE Ⓗ
SWITCHING PULSE GENERATOR
FG IN
PG IN
VCC
VREF IN
VREF OUT
+5V
(a)
(b)
SW 1
SW 2
SW 3
SW 4
H·A·SW
H · SW
TO HEAD AMP
FROM VIDEO
VSS
REC MODE SWITCHING
IC2002-27HEAD AMP SW
IC2002 28 HEAD SW
IC2002 23 SW1
IC2002 24 SW2
IC2002 25 SW3
IC2002 26 SW4
40mS
20mS
0.63mS
60mS
21.3mS
1.3mS
P.B MODE SWITCHING
IC2002-27 HEAD AMP SW
IC2002-28 HEAD SW
IC2002-23 SW1
IC2002-24 SW2
IC2002-25 SW3
IC2002-26 SW4

CYLINDER SERVO SPEED LOOP.
CYLINDER SERVO PHASE LOOP.
CAPSTAN SERVO SPEED LOOP.
CAPSTAN SERVO PHASE LOOP.


TP2003
REF
VOLTAGE UP
VOLTAGE DOWN
N(H) / OFF(L)
IC2007
CTL DUTY
SHIFT(L)2
SHIFT(L)1
P.B CTL
HEAD TR RECOGNITION
H.SW
H.AMP SW
TR UP (H)
TR DOWN (H)
RESET
+5V
QR2004
X2001
OSC
ANCE & CHROMINANCE
Hz
FROM IC6007-13
HEAD TR. RECOGNITION
NORMAL 2.5V
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
CYLINDER PG
CYLINDER FG
002 (AN3798S)
AD SWITCHING PULSE GENERATOR)
EE (H)
G IN
G IN
VCC
VREF IN
VREF OUT
+5V
Q2001
Q2002
Q2003
CYLINDER DRIVE +5V
FROM POWER
P2001 1
P2001 13
P2001 2
P2001 10
P2001 12
P2001 5
P2001 6
P2001 3
P2001 4
P2001 14
P2001 8
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
TORQUE CONTROL
VCC
+5V
IC 2006 (TA8402F)
(CYLINDER MOTOR DRIVE)
M1
M2
M3
N
S
HALL ICA
HALL ICB
HALL ICC
PG HEAD
FG HEAD
DD CYLINDER MOTOR
CAP POWER
FROM POWER
ETR
RIPPLE CANCELLER
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
POSITION SIGNAL PROCESS
TORQUE DIRECTION
IC 2005 (BA6430S)
(CAPSTAN MOTOR DRIVE)
P2002 4
P2002 8
P2002 13
P2002 5
P2002 7
P2002 9
P2002 11
P2002 12
P2002 14
P2002 1
CAP REV(H)/STOP(M)/FWD(L)
HALL IC1
HALL IC2
HALL IC3
FG HEAD
DD CAPSTAN MOTOR

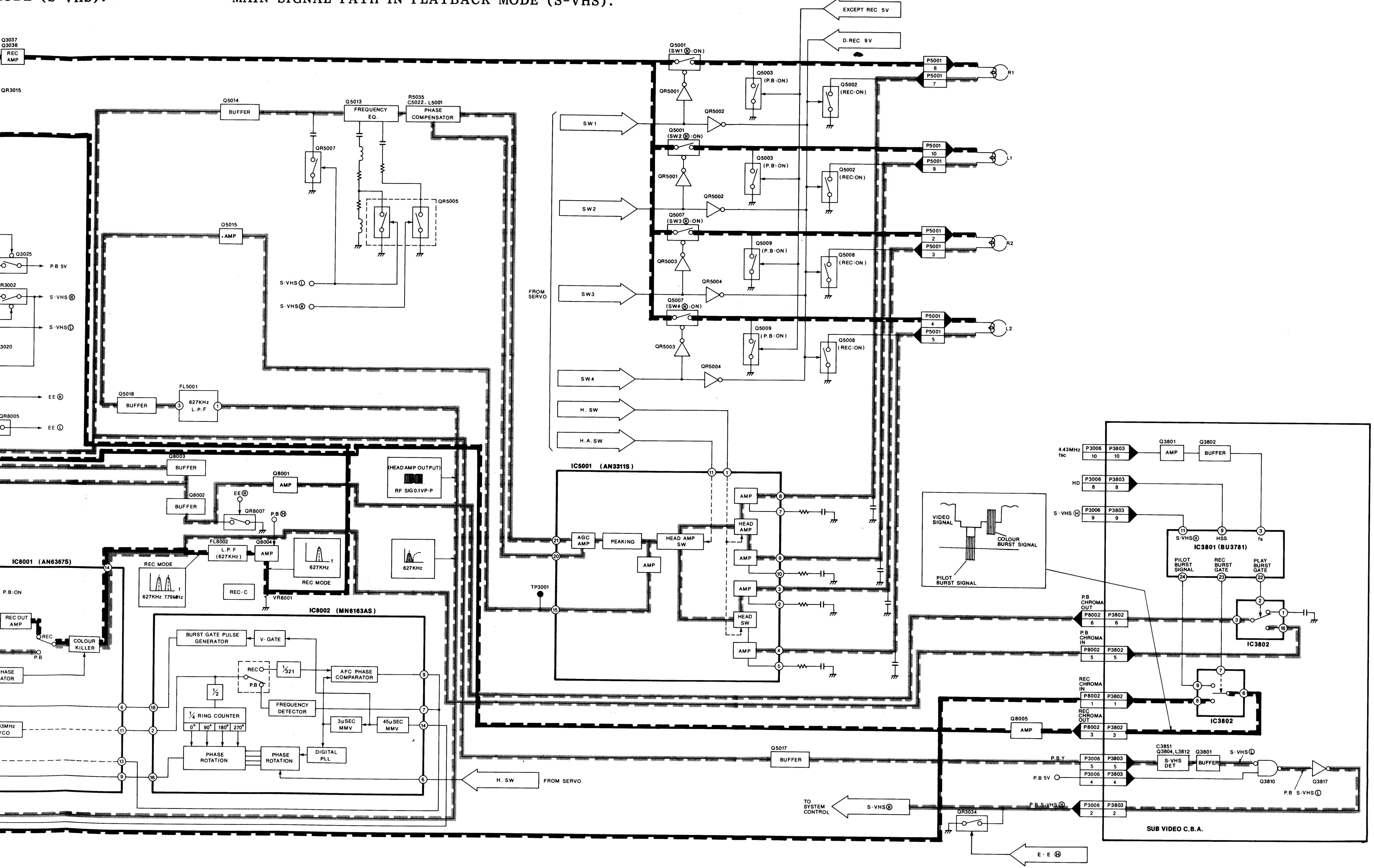
3-5. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


IC3201
NON LINEAR PROCESS
R/P SELECT
SUB-EMPHASIS C.B.A.
FL1
3MHz L.P.F
FL2
5MHz L.P.F
Q3032
BUFFER
QR3009
QR3031
S-VHS Ⓗ
Q3030
AMP
Q3001
BUFFER
FROM PROCESS
FP301
P3003
CAMERA Y
QR3027
IC3001 (AN3215S)
AGC
SUB CLAMP
12dB AMP
CLAMP
NON-LINEAR EMPHASIS DE-EMPHASIS
EMPHASIS
FM MODULATOR
LIM
L.P.F
N.C MIX
WHITE/DARK CLIP
P.B AMP
AGC DET
SYNC SEPA
V.V AMP
MIXER
J1503 14P CONNECTOR
LINE Y IN
LINE C IN
P3002
Q3024
QR3001
TO SERVO
V - SYNC
J1506
S-VIDEO CONNECTOR
P1502
P3001
Q3008 Q3010
Y AMP
TP3002
Q3018 Q3019
Q3021
MIX
FROM SYSTEM CONTROL
REC DATA
Q3006
TO PROCESS
REC.DATA
Q3007
P8001
C OUT
J1504
EVF CONNECTOR
P1505
P3004
EVF OUT
TITLE
ZONE
LINE Ⓗ
EDIT Ⓗ
CAMERA C
QR8006
QR8001
Q8011
Q8010
Q8009
C AMP
Q8014
EE Ⓛ
DL3001
6MHz 1H DELAY (WIDE BAND)
4MHz 1H DELAY (NARROW BAND)
Q3043
Q3042
S-VHS Ⓛ
FL3004
VR3012
LNC
IC3002 (AN3321S)
D.O.C SW
DIFFERENTIAL AMP
1H DELAY FM DEMODULATOR
LIMITER
DROP OUT DETECTOR
D.O.C. PULSE
PICTURE CONTROL
MAIN FM DEMODULATOR
H.P.F
C3060,C3061
C3059,R3089
FL3003
3MHz
QR3029
QR3018
QR3028
B.P.5V
QR3011
E-E Ⓗ
H.SW
QR3032
DEV.1
VR3005
DEV.2
VR3008
Q3040
SYNC.F.2
VR3009
SYNC.F.1
VR3004
TP3005
VR3006
Y REC CURR.
D/C
VR3003
VR3002
W/C
QR3022
QR3016
Q3036
Q3037 Q3038
REC AMP
QR3045
QR3044
QR3015
EXCEPT REC Ⓛ
Q3025
P.B 5V
FROM POWER
SWITCHED 5V
QR3002
QR3020
EE Ⓗ
QR8005
9V
HEAD AMP OUTPUT
RF SIG 0.5VP-P
Q5018
FL5001
627KHz L.P.F
Q8003
Q8002
QR8004
FL8003
4.43MHz B.P.F
Q8006
DL8001
COMB FILTER (2HDL)
IC8001 (AN6367S)
P.B:ON
ACC
ACC DETECTOR
BURST 6dB ATT
P.B BUFFER
REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
REC OUT AMP
COLOUR KILLER
BURST GATA
KILLER PHASE COMPARATOR
90° PHASE SHIFTER
X TAL VCO
REC APC COMPARATOR
5.03MHz VCO
SUB BLANCE MODULATOR
P.B APC COMPARATOR
FL8001
5.02MHz B.P.F
X8001,Q8007
OSC 4.43MHz
TP8001
0.5Vp.p 4.43MHz
REC MODE
627KHz 7.79MHz
BURST GATE
1/4 RING

—— MAIN SIGNAL PATH IN REC MODE (VHS).
- - - MAIN SIGNAL PATH IN REC MODE (S-VHS).

Back Page:
SERVO Section

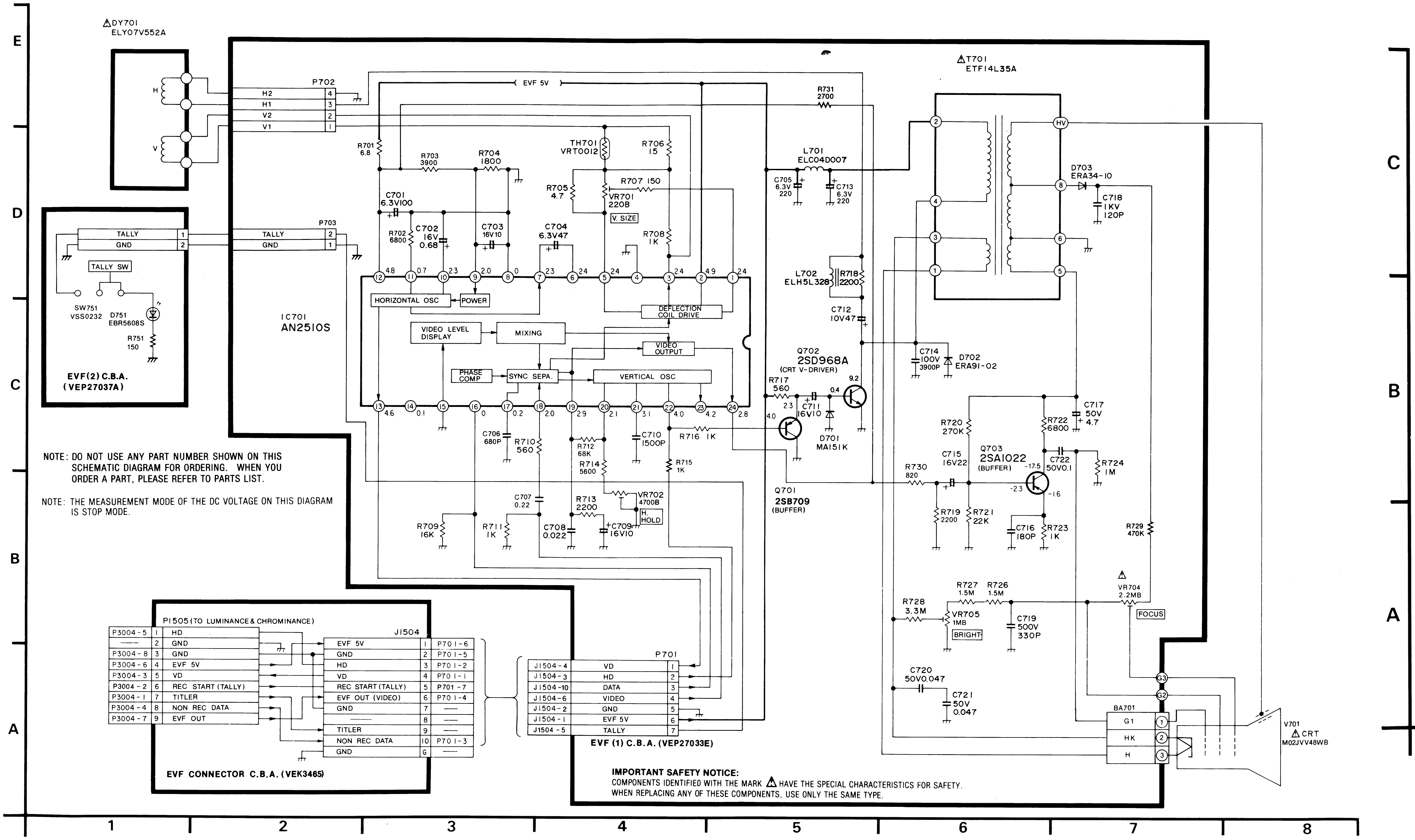
ODE (VHS). —— MAIN SIGNAL PATH IN PLAYBACK MODE (VHS).
ODE (S-VHS). – – – MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS).



Q3037
Q3038
REC AMP
QR3015
Q5014
BUFFER
Q5013
FREQUENCY EQ.
R5035
C5022, L5001
PHASE COMPENSATOR
QR5007
QR5005
Q5015
AMP
Q3025
P.B 5V
R3002
S-VHS Ⓗ
S-VHS Ⓛ
3020
S-VHS Ⓛ
S-VHS Ⓗ
EE Ⓗ
R8005
EE Ⓛ
Q5018
BUFFER
FL5001
627KHz L.P.F
EXCEPT REC 5V
D.REC 9V
Q5001
(SW1 Ⓗ:ON)
Q5003
(P.B:ON)
Q5002
(REC:ON)
QR5001
QR5002
Q5001
(SW2 Ⓗ:ON)
Q5007
(SW3 Ⓗ:ON)
Q5009
(P.B:ON)
Q5008
(REC:ON)
QR5003
QR5004
Q5007
(SW4 Ⓗ:ON)
SW1
SW2
SW3
SW4
FROM SERVO
H. SW
H.A. SW
P5001
R1
L1
R2
L2
Q8003
BUFFER
Q8002
BUFFER
Q8001
AMP
EE Ⓗ
QR8007
P.B Ⓗ
(HEAD AMP OUTPUT)
RF SIG 0.1VP-P
627KHz
IC5001 (AN3311S)
AGC AMP
PEAKING
HEAD AMP SW
AMP
HEAD AMP
HEAD SW
TP3001
IC8001 (AN6367S)
REC MODE
627KHz 7.79MHz
FL8002
L.P.F (627KHz)
Q8004
AMP
627KHz
REC MODE
REC·C
VR8001
P.B:ON
REC OUT AMP
REC
P.B
COLOUR KILLER
HASE
ATOR
3MHz
VCO
IC8002 (MN6163AS)
BURST GATE PULSE GENERATOR
V-GATE
REC
P.B
1/321
AFC PHASE COMPARATOR
1/2
FREQUENCY DETECTOR
1/4 RING COUNTER
0° 90° 180° 270°
3μSEC MMV
45μSEC MMV
PHASE ROTATION
PHASE ROTATION
DIGITAL PLL
H.SW
FROM SERVO
Q5017
BUFFER
TO SYSTEM CONTROL
S-VHS Ⓗ
QR3034
E·E Ⓗ
4.43MHz fsc
P3006
P3803
Q3801
AMP
Q3802
BUFFER
HD
S-VHS Ⓗ
VIDEO SIGNAL
COLOUR BURST SIGNAL
PILOT BURST SIGNAL
S-VHS Ⓗ
HSS
fs
IC3801 (BU3781)
PILOT BURST SIGNAL
REC BURST GATE
PLAY BURST GATE
IC3802
P.B CHROMA OUT
P8002
P3802
P.B CHROMA IN
REC CHROMA IN
REC CHROMA OUT
IC3802
Q8005
AMP
C3851
Q3804, L3812
S-VHS DET
Q3801
BUFFER
S-VHS Ⓛ
P.B.Y
P.B 5V
Q3810
Q3817
P.B S-VHS Ⓛ
P.B S-VHS Ⓗ
SUB VIDEO C.B.A.

3-6. E.V.F. SCHEMATIC DIAGRAM

3-7. E.V

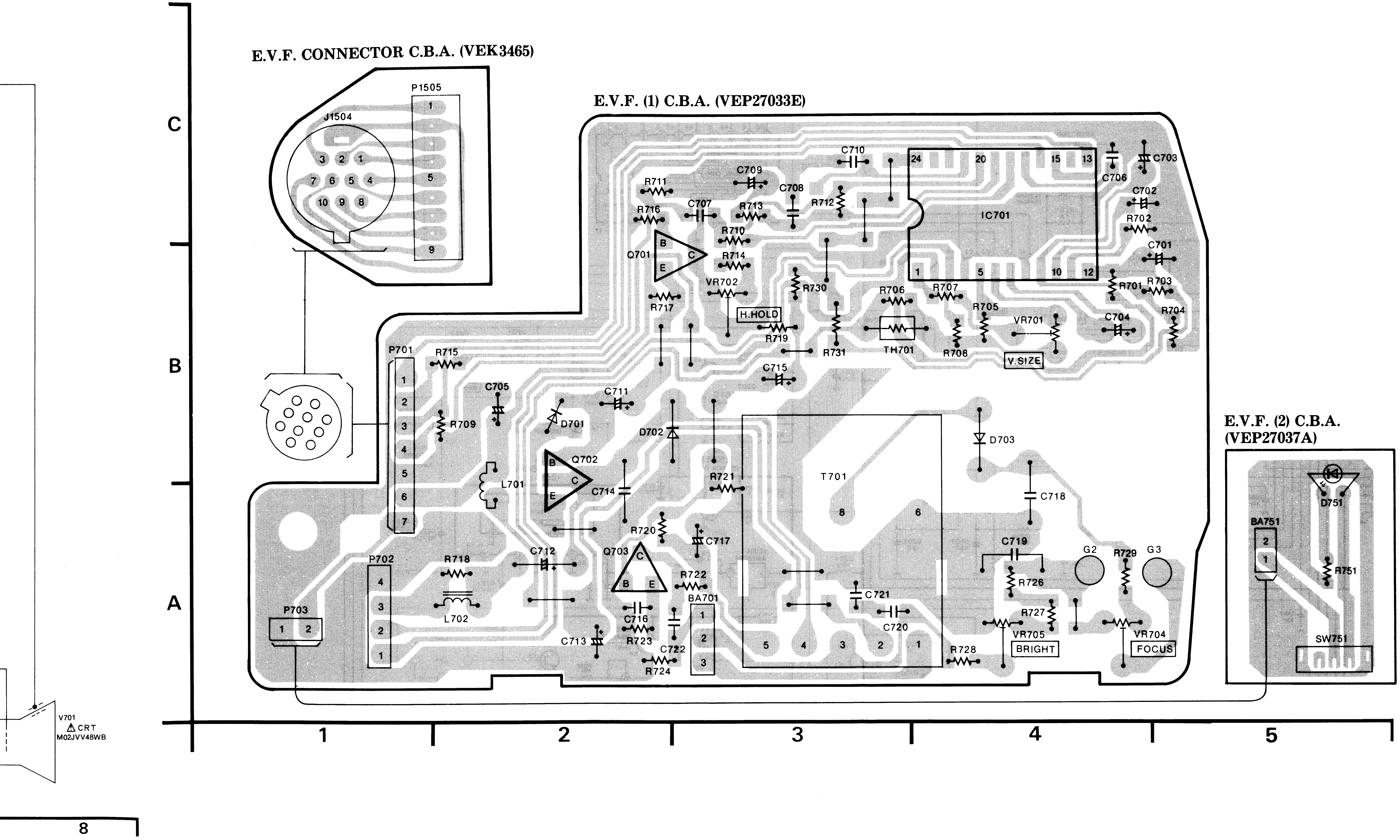

E
D
C
B
A
1
2
3
4
5
6
7
8
⚠DY701
ELY07V552A
H
V
P702
H2
H1
V2
V1
4
3
2
1
EVF 5V
R701
6.8
R703
3900
R704
1800
TH701
VRT0012
R706
15
R731
2700
⚠T701
ETF14L35A
L701
ELC04D007
C705
6.3V
220
C713
6.3V
220
D703
ERA34-10
C718
1KV
120P
HV
R705
4.7
R707 150
VR701
220B
V. SIZE
R708
1K
C701
6.3V100
C702
16V
0.68
C703
16V10
C704
6.3V47
R702
6800
P703
TALLY
GND
TALLY SW
SW751
VSS0232
D751
EBR5608S
R751
150
EVF(2) C.B.A.
(VEP27037A)
IC701
AN2510S
HORIZONTAL OSC
POWER
DEFLECTION COIL DRIVE
VIDEO LEVEL DISPLAY
MIXING
VIDEO OUTPUT
PHASE COMP
SYNC SEPA.
VERTICAL OSC
L702
ELH5L328
R718
2200
C712
10V47
Q702
2SD968A
(CRT V-DRIVER)
C714
100V
3900P
D702
ERA91-02
R717
560
C711
16V10
D701
MA151K
Q701
2SB709
(BUFFER)
R716 1K
C706
680P
R710
560
R712
68K
R714
5600
C710
1500P
R715
1K
C707
0.22
R713
2200
VR702
4700B
H. HOLD
C709
16V10
C708
0.022
R709
16K
R711
1K
R720
270K
R722
6800
C717
50V
4.7
Q703
2SA1022
(BUFFER)
C715
16V22
C722
50V0.1
R724
1M
R730
820
R719
2200
R721
22K
C716
180P
R723
1K
R729
470K
⚠
VR704
2.2MB
FOCUS
R727
1.5M
R726
1.5M
R728
3.3M
VR705
1MB
BRIGHT
C719
500V
330P
C720
50V0.047
C721
50V
0.047
BA701
G1
HK
H
G3
G2
V701
⚠CRT
M02JVV48WB
P1505 (TO LUMINANCE & CHROMINANCE)
J1504
P3004-5 1 HD
—— 2 GND
P3004-8 3 GND
P3004-6 4 EVF 5V
P3004-3 5 VD
P3004-2 6 REC START (TALLY)
P3004-1 7 TITLER
P3004-4 8 NON REC DATA
P3004-7 9 EVF OUT
EVF 5V 1 P701-6
GND 2 P701-5
HD 3 P701-2
VD 4 P701-1
REC START (TALLY) 5 P701-7
EVF OUT (VIDEO) 6 P701-4
GND 7 ——
—— 8 ——
TITLER 9 ——
NON REC DATA 10 P701-3
GND G ——
EVF CONNECTOR C.B.A. (VEK3465)
P701
J1504-4 VD 1
J1504-3 HD 2
J1504-10 DATA 3
J1504-6 VIDEO 4
J1504-2 GND 5
J1504-1 EVF 5V 6
J1504-5 TALLY 7
EVF (1) C.B.A. (VEP27033E)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

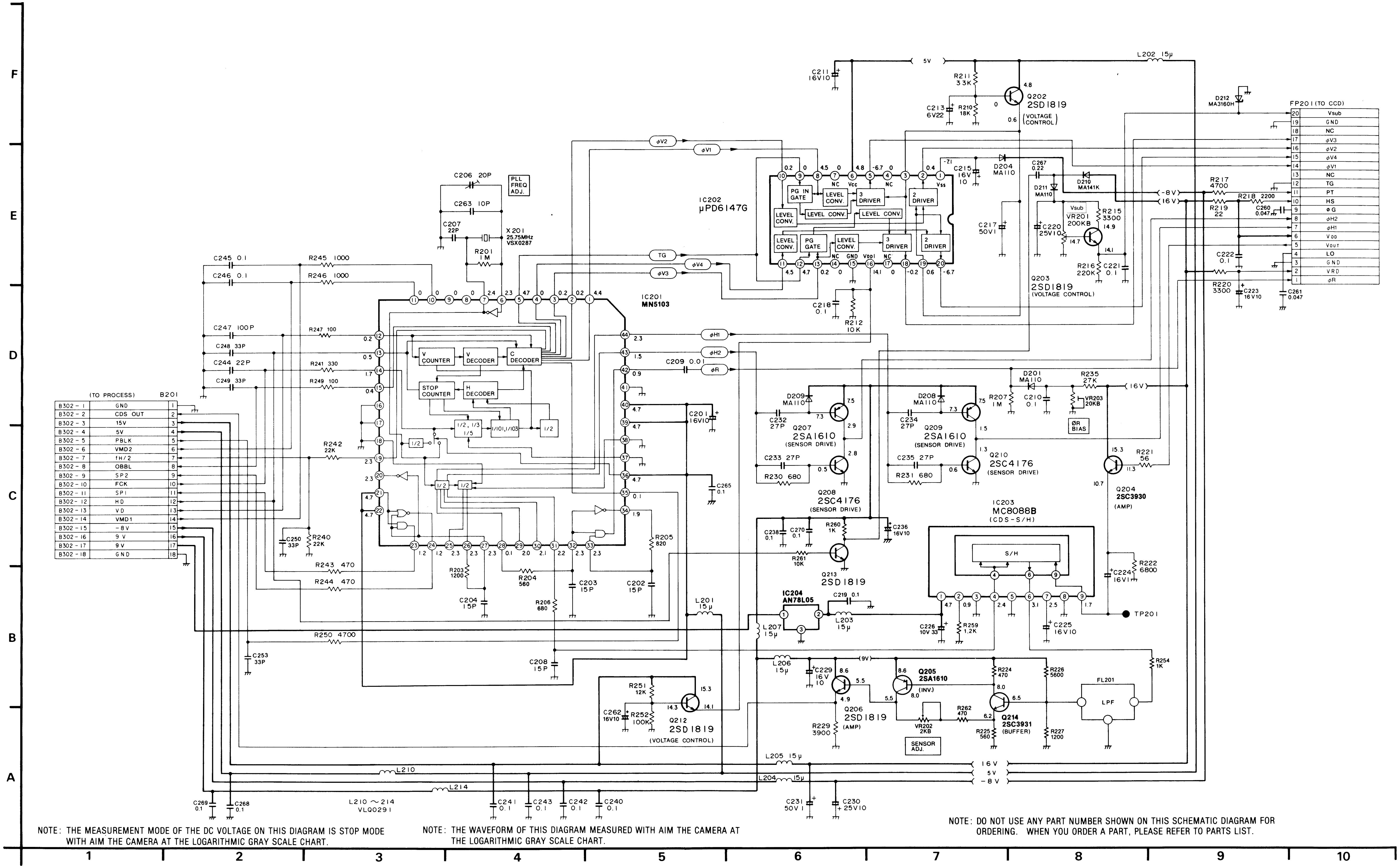
3-7. E.V.F. (1) C.B.A. (VEP27033E) & E.V.F. (2) C.B.A. (VEP27037A)


E.V.F. CONNECTOR C.B.A. (VEK3465)
J1504
P1505
E.V.F. (1) C.B.A. (VEP27033E)
E.V.F. (2) C.B.A. (VEP27037A)
C
B
A
1
2
3
4
5
IC701
T701
Q701
Q702
Q703
P701
P702
P703
BA701
BA751
D701
D702
D703
D751
L701
L702
TH701
SW751
VR701
VR702
VR704
VR705
H.HOLD
V.SIZE
BRIGHT
FOCUS
G2
G3
R701
R702
R703
R704
R705
R706
R707
R708
R709
R710
R711
R712
R713
R714
R715
R716
R717
R718
R719
R720
R721
R722
R723
R724
R726
R727
R728
R729
R730
R731
R751
C701
C702
C703
C704
C705
C706
C707
C708
C709
C710
C711
C712
C713
C714
C715
C716
C717
C718
C719
C720
C721
C722
V701
CRT
M02JVV48WB
8

E.V.F. (1) C.B.A.	
Transistor	
Q701	B-2
Q702	B-2
Q703	A-2
Integrated Circuit	
IC701	C-4
Adjustment	
VR701	B-4
VR702	B-3
VR704	A-4
VR705	A-4
Connector	
BA701	A-3
BA751	A-5
J1504	C-1
P1505	C-1
P701	B-1
P702	A-1
P703	A-1

ADDRESS INFORMATION

3-8. SENSOR SCHEMATIC DIAGRAM



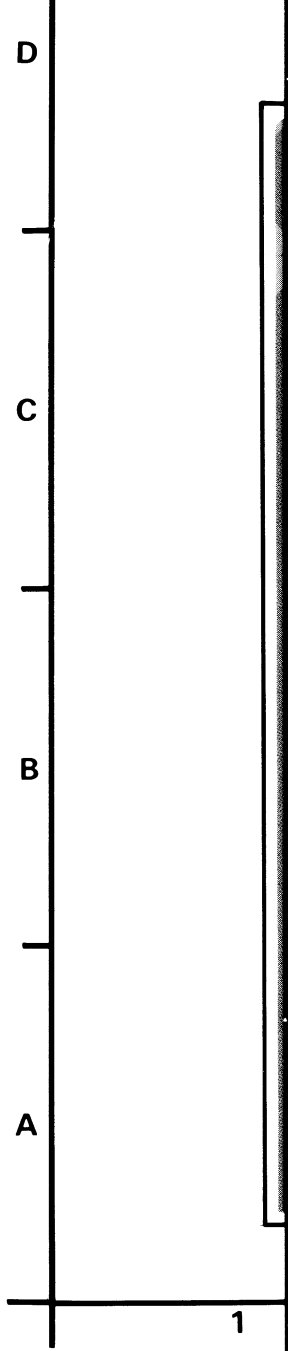
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
(TO PROCESS)
B201
B302 - 1 GND 1
B302 - 2 CDS OUT 2
B302 - 3 15V 3
B302 - 4 5V 4
B302 - 5 PBLK 5
B302 - 6 VMD2 6
B302 - 7 fH/2 7
B302 - 8 OBBL 8
B302 - 9 SP2 9
B302 - 10 FCK 10
B302 - 11 SP1 11
B302 - 12 HD 12
B302 - 13 VD 13
B302 - 14 VMD1 14
B302 - 15 -8V 15
B302 - 16 9V 16
B302 - 17 9V 17
B302 - 18 GND 18
IC201
MN5103
IC202
μPD6147G
IC203
MC8088B
(CDS-S/H)
IC204
AN78L05
X201
25.75MHz
VSX0287
PLL FREQ ADJ.
V COUNTER
V DECODER
C DECODER
STOP COUNTER
H DECODER
1/2, 1/3 1/5
1/101,1/103
1/2
PG IN GATE
LEVEL CONV.
3 DRIVER
2 DRIVER
PG GATE
S/H
Q202 2SD1819 (VOLTAGE CONTROL)
Q203 2SD1819 (VOLTAGE CONTROL)
Q204 2SC3930 (AMP)
Q205 2SA1610 (INV.)
Q206 2SD1819 (AMP)
Q207 2SA1610 (SENSOR DRIVE)
Q208 2SC4176 (SENSOR DRIVE)
Q209 2SA1610 (SENSOR DRIVE)
Q210 2SC4176 (SENSOR DRIVE)
Q212 2SD1819 (VOLTAGE CONTROL)
Q213 2SD1819
Q214 2SC3931 (BUFFER)
D201 MA110
D204 MA110
D208 MA110
D209 MA110
D210 MA141K
D211 MA110
D212 MA3160H
VR201 200KB
VR202 2KB
VR203 20KB
ØR BIAS
SENSOR ADJ.
FL201 LPF
TP201
FP201 (TO CCD)
20 Vsub
19 GND
18 NC
17 φV3
16 φV2
15 φV4
14 φV1
13 NC
12 TG
11 PT
10 HS
9 φG
8 φH2
7 φH1
6 VDD
5 VOUT
4 LO
3 GND
2 VRD
1 φR
φV1
φV2
φV3
φV4
TG
φH1
φH2
φR
5V
16V
-8V
9V
L202 15μ
L201 15μ
L203 15μ
L205 15μ
L206 15μ
L207 15μ
L204 15μ
L210
L214
L210 ~ 214 VLQ0291
C206 20P
C263 10P
C207 22P
R201 1M
C245 0.1
C246 0.1
R245 1000
R246 1000
C247 100P
C248 33P
C244 22P
C249 33P
R247 100
R241 330
R249 100
R242 22K
C250 33P
R240 22K
R243 470
R244 470
R250 4700
C253 33P
R203 1200
C204 15P
R204 560
R206 680
C203 15P
C202 15P
R205 820
C208 15P
C209 0.01
C201 16V10
C265 0.1
C211 16V10
R211 3.3K
C213 6V22
R210 18K
C215 16V 10
C267 0.22
C217 50V1
C220 25V10
R215 3300
R216 220K
C221 0.1
C218 0.1
R212 10K
R217 4700
R218 2200
R219 22
C260 0.047
C222 0.1
R220 3300
C223 16V10
C261 0.047
C232 27P
C233 27P
R230 680
C234 27P
C235 27P
R231 680
R207 1M
C210 0.1
R235 27K
R221 56
C236 16V10
C238 0.1
C270 0.1
R260 1K
R261 10K
C219 0.1
C226 10V 33
R259 1.2K
C225 16V10
C224 16V1
R222 6800
R254 1K
R251 12K
C262 16V10
R252 100K
C229 16V 10
R229 3900
R224 470
R262 470
R225 560
R226 5600
R227 1200
C269 0.1
C268 0.1
C241 0.1
C243 0.1
C242 0.1
C240 0.1
C231 50V1
C230 25V10

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

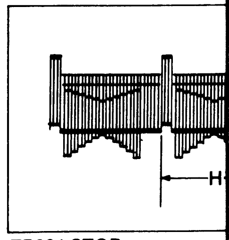
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-9. SENSOR



SENSOR CIRCUIT T
WAVE FORM (REF. N

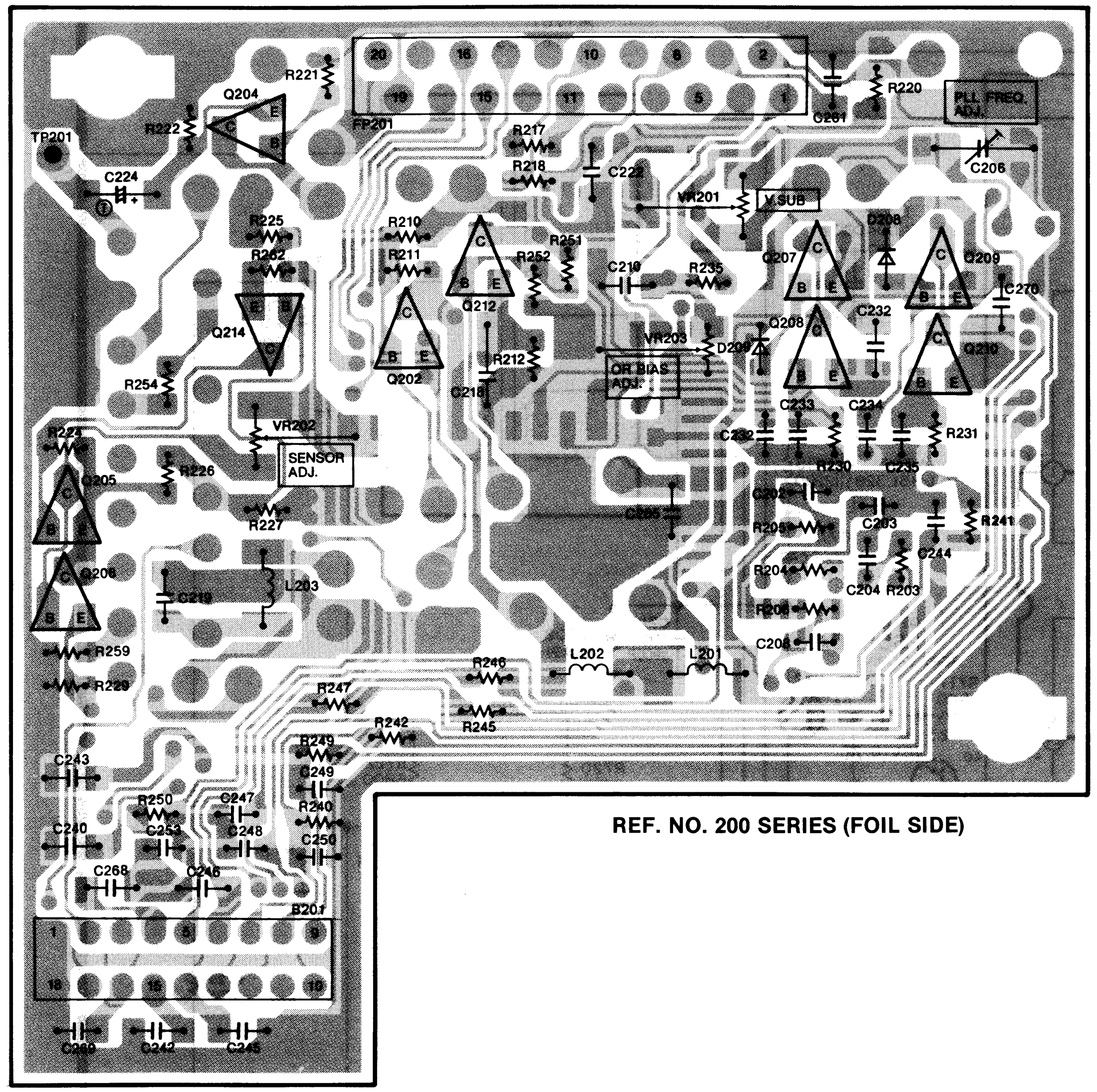


TP201 STOP
0.2V/20μsec. div. 0.6Vp

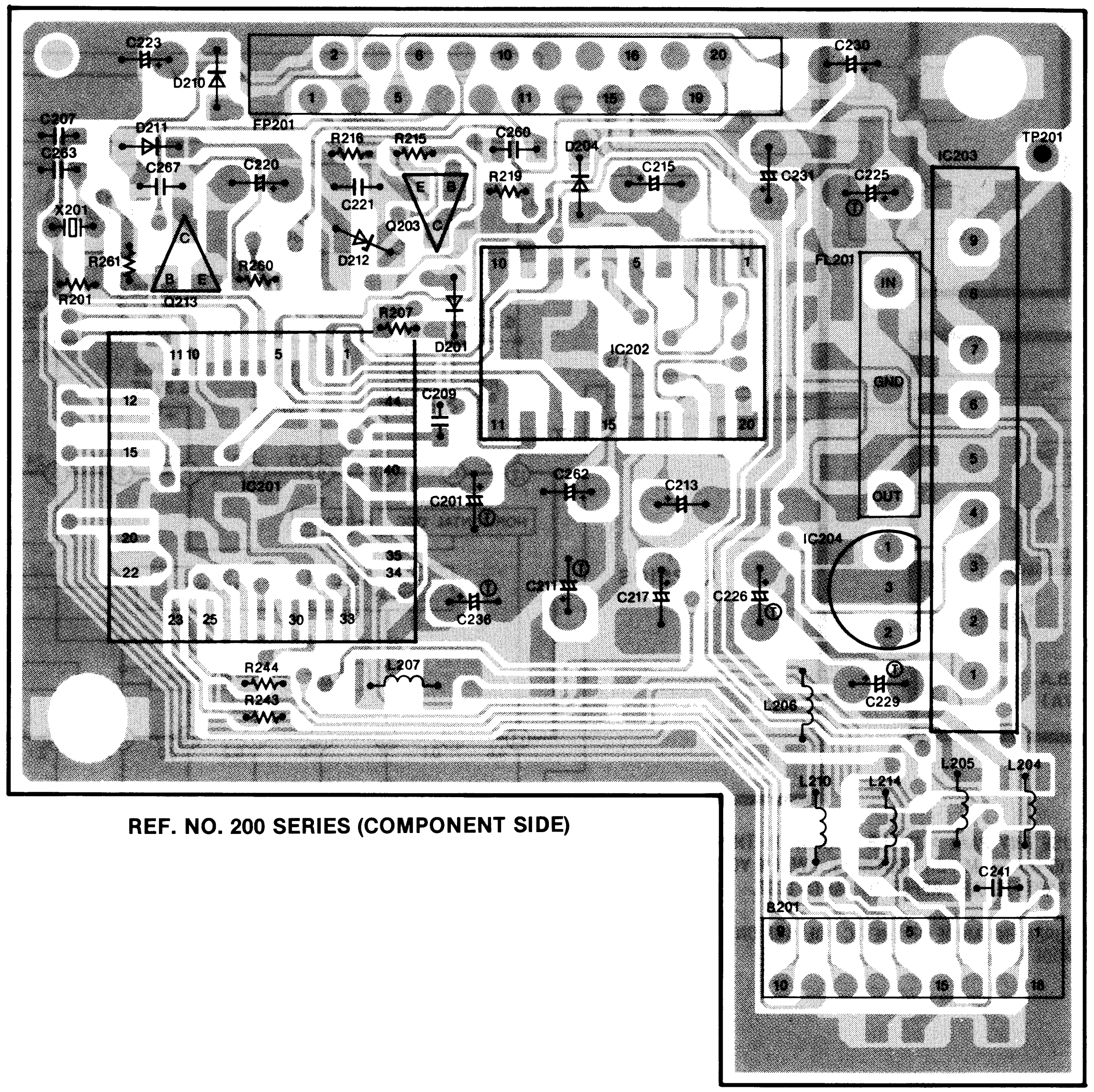
Back Page:
E.V.F. Section

3-9. SENSOR C.B.A. (VEP22076A)

O CCD)
Vsub
GND
NC
φV3
φV2
φV4
φV1
NC
TG
PT
HS
ø G
φH2
φH1
V DD
Vout
LO
GND
VRD
φR

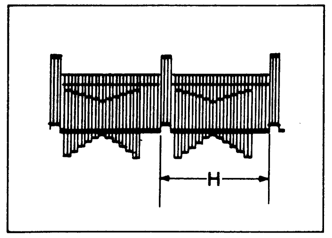

D
C
B
A
1
2
3
4
FP201
20
16
10
8
2
19
15
11
5
1
R221
Q204
R222
TP201
C224
R220
C201
PLL FREQ ADJ.
R217
R218
C222
C206
VR201
V.SUB
R225
R262
R210
R211
Q212
R251
R252
C219
R235
Q207
D208
Q209
C270
Q214
Q202
R212
C218
VR203
OR BIAS ADJ.
D209
Q208
C232
Q210
R254
VR202
SENSOR ADJ.
R224
R226
C233
C234
R231
C252
R230
C235
Q205
R227
C202
C205
R205
C203
R241
C244
Q206
L203
R204
C204
R203
R206
C208
R259
R229
L202
L201
R246
R247
R245
R242
C243
R249
C249
R240
R250
C247
C253
C248
C250
C240
C268
C246
B201
1
9
18
10
15
C269
C242
C245
B
C
E

REF. NO. 200 SERIES (FOIL SIDE)


5
6
7
8
C223
D210
FP201
2
6
10
16
20
1
5
11
15
19
C230
C207
C263
D211
C267
C220
R216
R215
C260
D204
C215
C231
C225
TP201
IC203
R219
C221
X201
Q203
D212
R261
R201
Q213
R260
R207
D201
C209
IC202
FL201
IN
GND
OUT
IC201
11 10
12
15
20
22
23
25
30
33
34
C201
C262
C213
IC204
C211
C236
C217
C226
R244
R243
L207
L206
C229
L205
L204
L210
L214
C241
B201
9
1
10
18
B
C
E

REF. NO. 200 SERIES (COMPONENT SIDE)

**SENSOR CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 200 Series)**



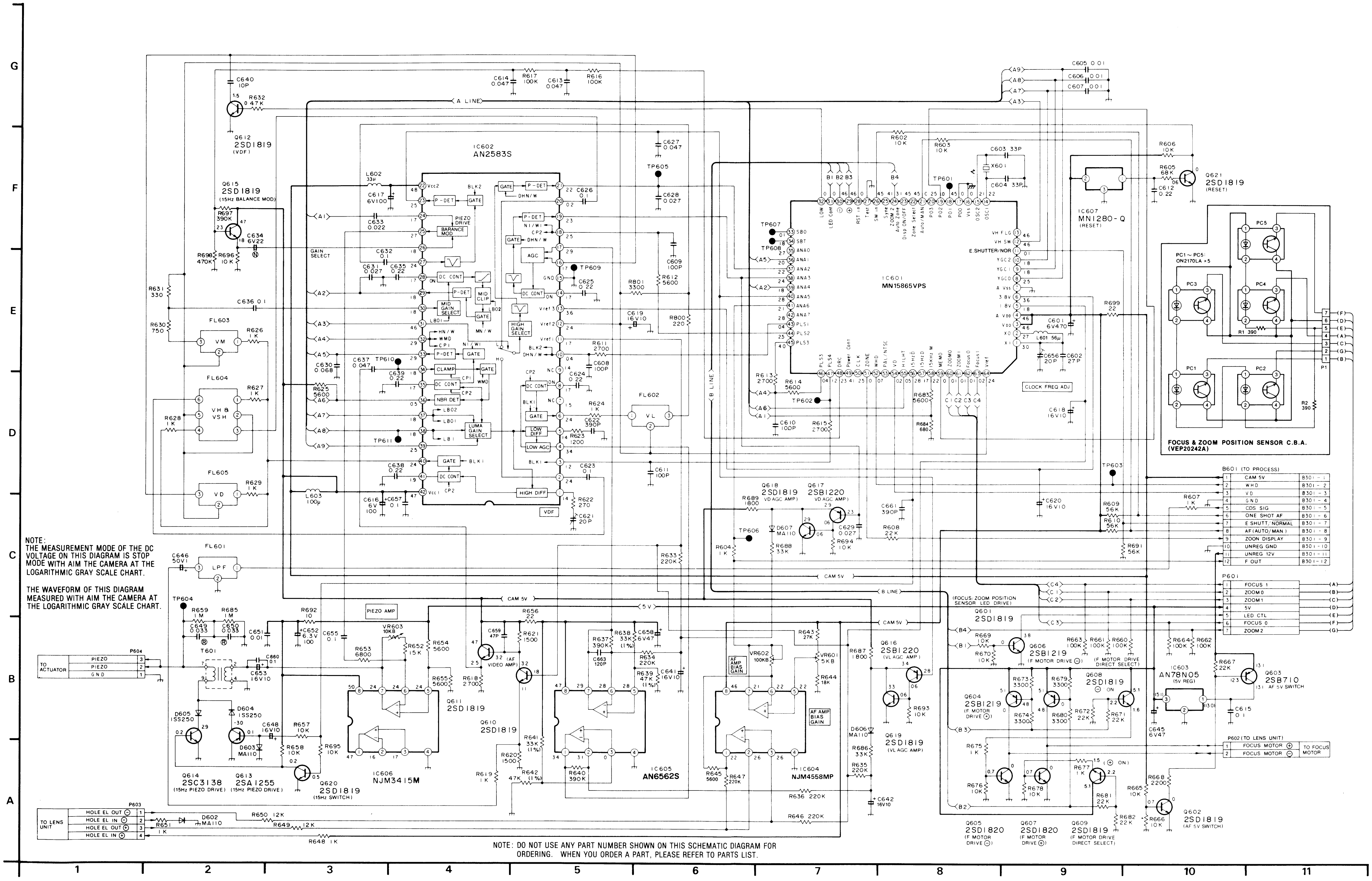
TP201 STOP
0.2V/20μsec. div. 0.6Vp-p

SENSOR C.B.A.

Transistor		Integrated Circuit		Adjustment	
Q202	C-2 Ⓕ	IC201	B-6 Ⓒ	C206	C-4 Ⓕ
Q203	C-6 Ⓒ	IC202	C-7 Ⓒ	VR201	C-3 Ⓕ
Q204	B-1 Ⓕ	IC203	C-8 Ⓒ	VR202	C-1 Ⓕ
Q205	B-1 Ⓕ	IC204	B-7 Ⓒ	VR203	C-3 Ⓕ
Q206	B-1 Ⓕ	**Test Point**		**Connector**	
Q207	C-3 Ⓕ	TP201	C-1 Ⓕ	B201	A-2 Ⓕ
Q208	C-3 Ⓕ	TP201	C-8 Ⓒ	B201	A-7 Ⓒ
Q209	C-4 Ⓕ			FP201	D-3 Ⓕ
Q210	C-4 Ⓕ			FP201	D-6 Ⓒ
Q212	C-2 Ⓕ				
Q213	C-5 Ⓒ				
Q214	C-2 Ⓕ				

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-10. AUTO FOCUS SCHEMATIC DIAGRAM

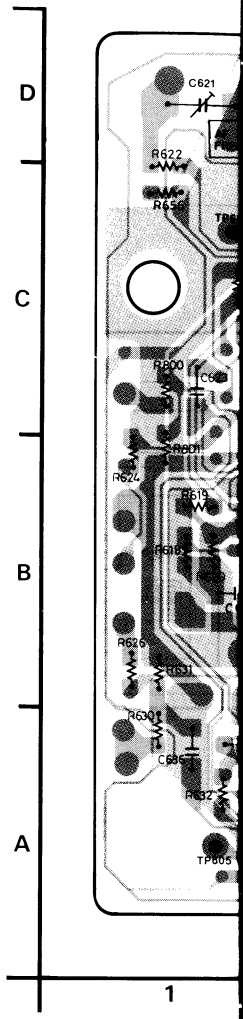

IC602 AN2583S
IC601 MN15865VPS
IC607 MN1280-Q (RESET)
IC603 AN78N05 (5V REG)
IC604 NJM4558MP
IC605 AN6562S
IC606 NJM3415M
Q612 2SD1819 (VDF)
Q615 2SD1819 (15Hz BALANCE MOD)
Q614 2SC3138 (15Hz PIEZO DRIVE)
Q613 2SA1255 (15Hz PIEZO DRIVE)
Q620 2SD1819 (15Hz SWITCH)
Q611 2SD1819
Q610 2SD1819
Q618 2SD1819 VD AGC AMP)
Q617 2SB1220 VD AGC AMP)
Q616 2SB1220 (VL AGC AMP)
Q619 2SD1819 (VL AGC AMP)
Q621 2SD1819 (RESET)
Q601 2SD1819 (FOCUS/ZOOM POSITION SENSOR LED DRIVE)
Q606 2SB1219 (F MOTOR DRIVE ⊖)
Q604 2SB1219 (F MOTOR DRIVE ⊕)
Q608 2SD1819 ⊖ ON
Q605 2SD1820 (F MOTOR DRIVE ⊖)
Q607 2SD1820 (F MOTOR DRIVE ⊕)
Q609 2SD1819 (F MOTOR DRIVE DIRECT SELECT)
Q602 2SD1819 (AF 5V SWITCH)
Q603 2SB710 AF 5V SWITCH
FL601 LPF
FL602 VL
FL603 VM
FL604 VH & VSH
FL605 VD
T601
PIEZO AMP
A LINE
B LINE
CAM 5V
5V
CLOCK FREQ ADJ
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
PC1 ~ PC5: ON2170LA × 5
P604 TO ACTUATOR: PIEZO, PIEZO, GND
P603 TO LENS UNIT: HOLE EL OUT ⊖, HOLE EL IN ⊖, HOLE EL OUT ⊕, HOLE EL IN ⊕
B601 (TO PROCESS): CAM 5V, WHD, VD, GND, CDS SIG, ONE SHOT AF, E SHUTT/NORMAL, AF(AUTO/MAN), ZOON DISPLAY, UNREG GND, UNREG 12V, F OUT
P601: FOCUS 1, ZOOM 0, ZOOM 1, 5V, LED CTL, FOCUS 0, ZOOM 2
P602 (TO LENS UNIT): FOCUS MOTOR ⊕, FOCUS MOTOR ⊖ TO FOCUS MOTOR
TP601 TP602 TP603 TP604 TP605 TP606 TP607 TP608 TP609 TP610 TP611
G F E D C B A
1 2 3 4 5 6 7 8 9 10 11

NOTE:
THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA ON THE LOGARITHMIC GRAY SCALE CHART.

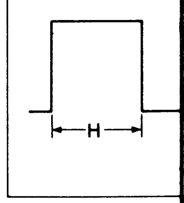
THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

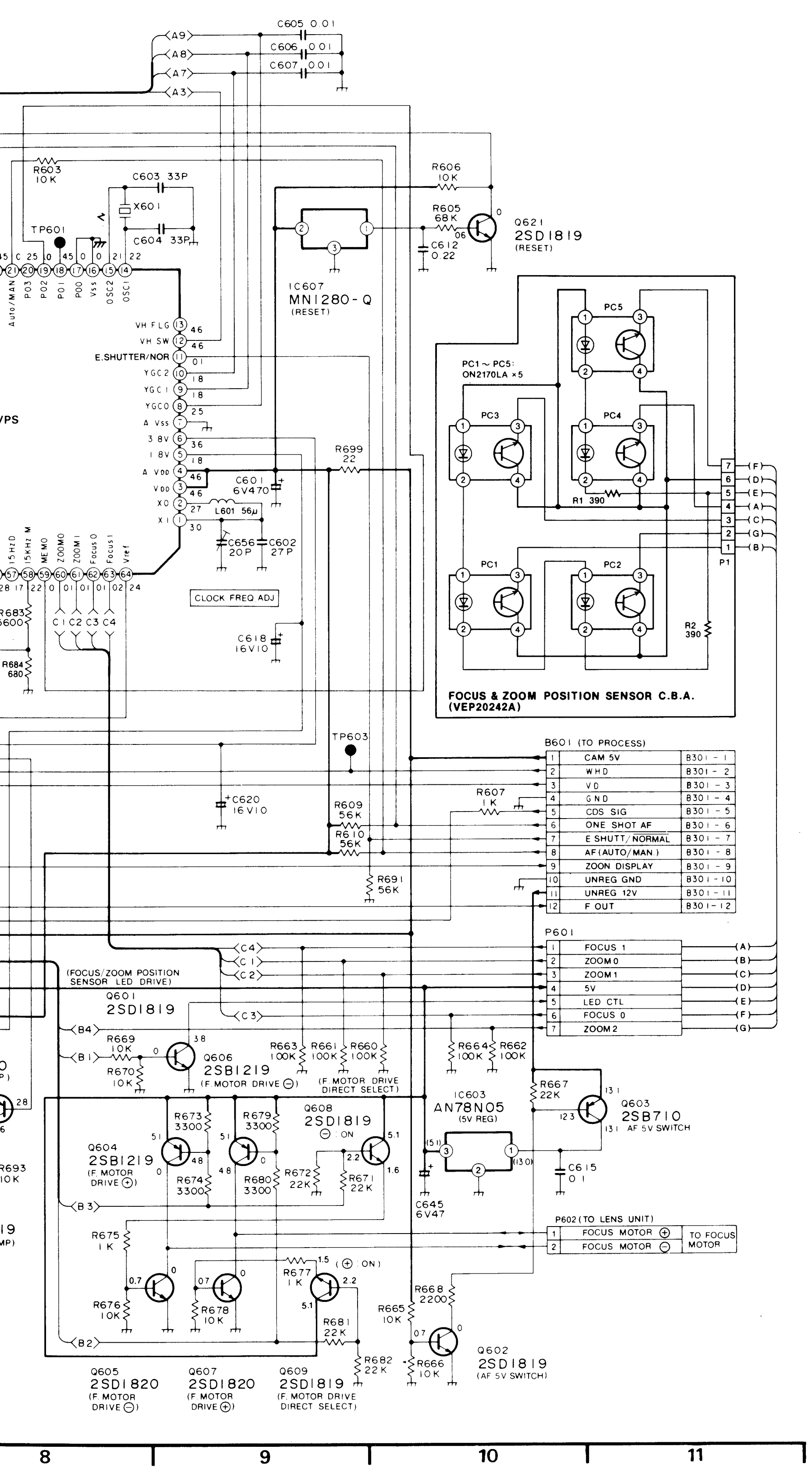
3-11. AUTO



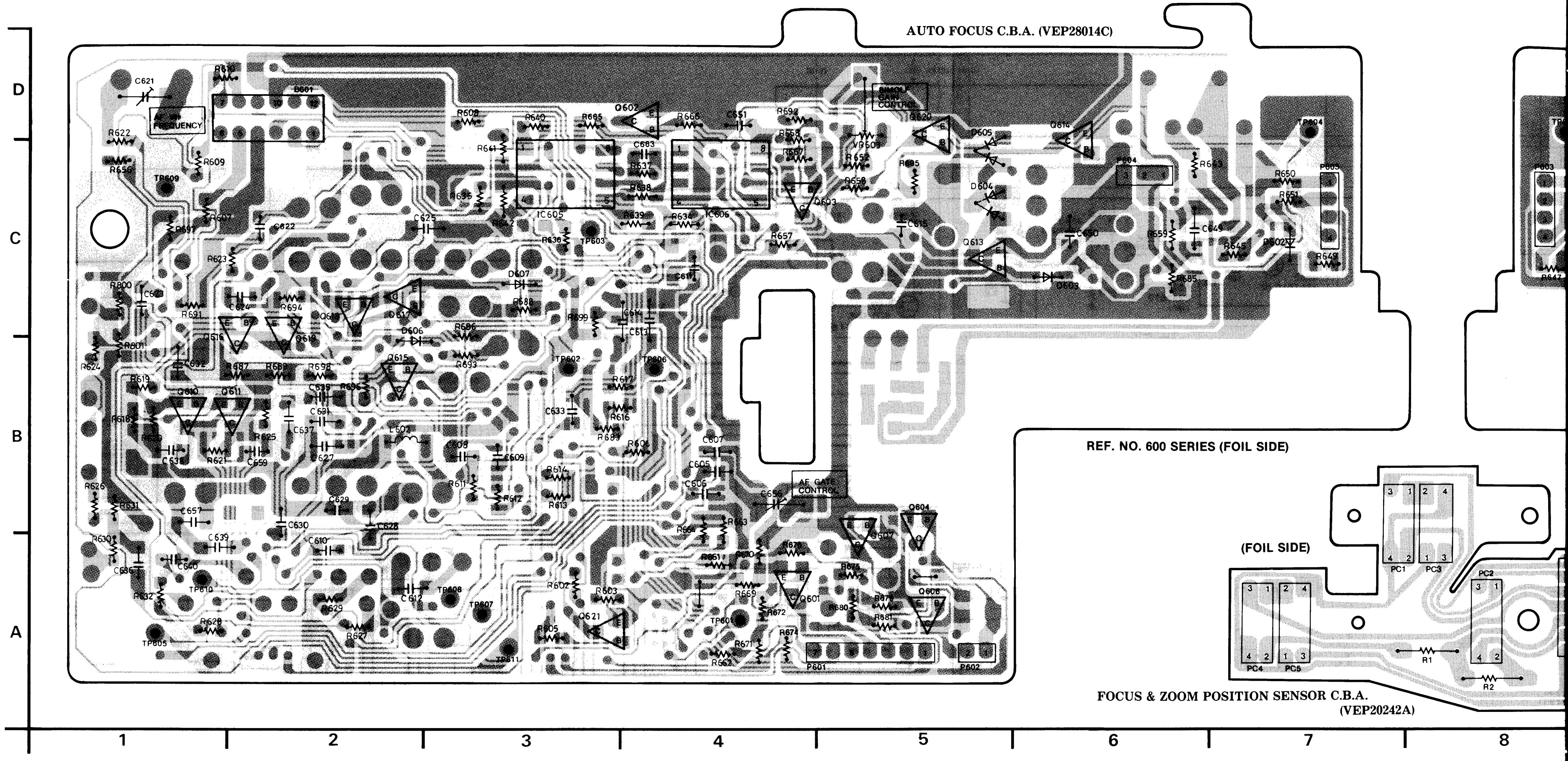
AUTO FOCUS C
WAVE FORM (R



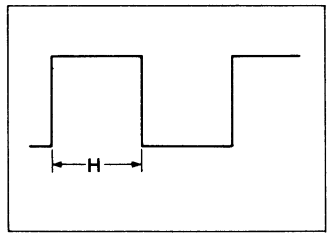
TP602 STOP
2.0V/20µsec. div. 4


C605 0.01
C606 0.01
C607 0.01
R603 10K
C603 33P
X601
C604 33P
TP601
R606 10K
R605 68K
C612 0.22
Q621 2SD1819 (RESET)
IC607 MN1280-Q (RESET)
PC1 ~ PC5: ON2170LA ×5
PC5
PC4
PC3
PC1
PC2
R1 390
R2 390
P1
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
VH FLG
VH SW
E.SHUTTER/NOR
R699 22
C601 6V470
L601 56μ
C656 20P
C602 27P
CLOCK FREQ ADJ
C618 16V10
R683 5600
R684 680
TP603
C620 16V10
R609 56K
R610 56K
R607 1K
R691 56K
B601 (TO PROCESS)
CAM 5V
WHD
VD
GND
CDS SIG
ONE SHOT AF
E.SHUTT/NORMAL
AF(AUTO/MAN.)
ZOON DISPLAY
UNREG GND
UNREG 12V
F OUT
P601
FOCUS 1
ZOOM 0
ZOOM 1
5V
LED CTL
FOCUS 0
ZOOM 2
(FOCUS/ZOOM POSITION SENSOR LED DRIVE)
Q601 2SD1819
R669 10K
R670 10K
Q606 2SB1219 (F.MOTOR DRIVE ⊖)
R663 100K
R661 100K
R660 100K
(F.MOTOR DRIVE DIRECT SELECT)
R664 100K
R662 100K
R667 22K
Q603 2SB710 AF 5V SWITCH
IC603 AN78N05 (5V REG)
C615 0.1
C645 6V47
Q604 2SB1219 (F.MOTOR DRIVE ⊕)
R673 3300
R679 3300
R674 3300
R680 3300
Q608 2SD1819
R672 22K
R671 22K
R693 10K
P602 (TO LENS UNIT)
FOCUS MOTOR ⊕
FOCUS MOTOR ⊖
TO FOCUS MOTOR
R675 1K
R677 1K
R676 10K
R678 10K
R681 22K
R665 10K
R668 2200
R682 22K
R666 10K
Q602 2SD1819 (AF 5V SWITCH)
Q605 2SD1820 (F.MOTOR DRIVE ⊖)
Q607 2SD1820 (F.MOTOR DRIVE ⊕)
Q609 2SD1819 (F.MOTOR DRIVE DIRECT SELECT)
8
9
10
11

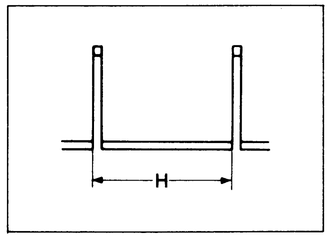
3-11. AUTO FOCUS C.B.A. (VEP28014C)


AUTO FOCUS C.B.A. (VEP28014C)
REF. NO. 600 SERIES (FOIL SIDE)
(FOIL SIDE)
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
AF OSC FREQUENCY
GAIN CONTROL
AF GATE CONTROL
IC605
IC606
B601
P601
P602
PC1
PC2
PC3
PC4
PC5
R1
R2
TP602
TP603
TP604
TP605
TP609
TP610
D
C
B
A
1
2
3
4
5
6
7
8

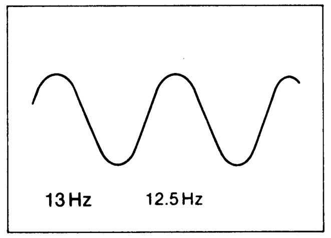
AUTO FOCUS CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 600 Series)



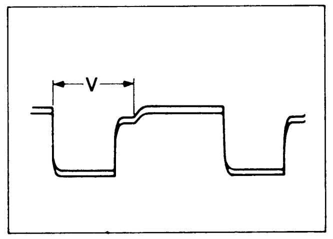
TP602 STOP
2.0V/20μsec. div. 4.8Vp-p



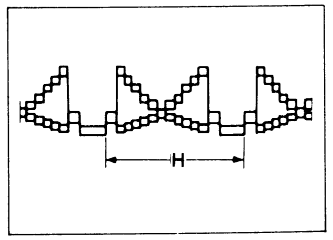
TP603 STOP
2.0V/20μsec. div. 5.0Vp-p



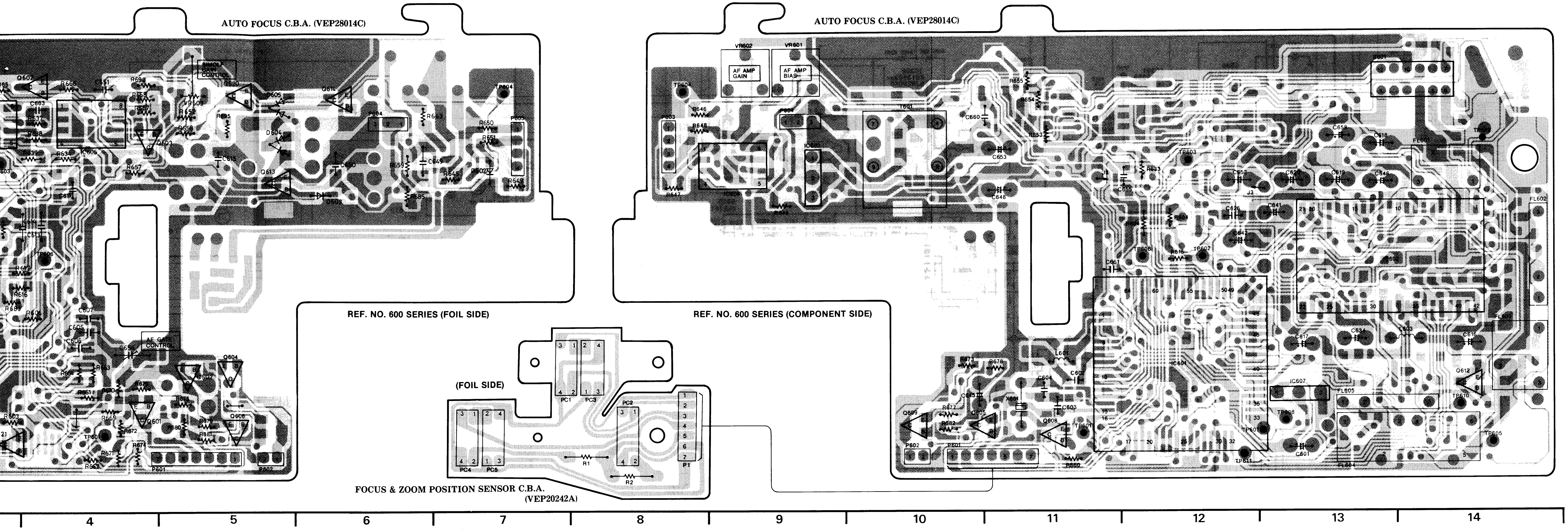
TP604 STOP
5.0V/20msec. div. 78Vp-p

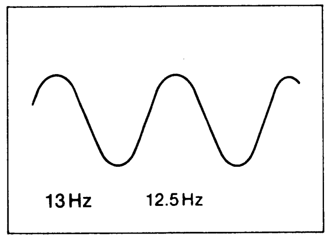


TP605 STOP
0.5V/5msec. div. 1.2Vp-p

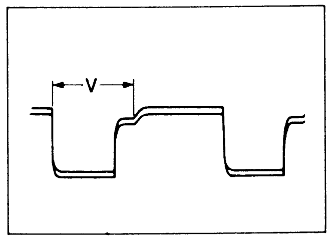


TP610 STOP
0.1V/20μsec. div. 0.25Vp-p

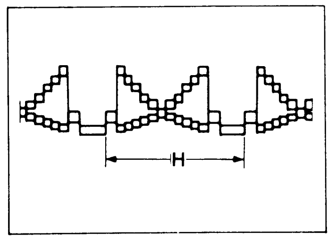

AUTO FOCUS C.B.A. (VEP28014C)
AUTO FOCUS C.B.A. (VEP28014C)
REF. NO. 600 SERIES (FOIL SIDE)
REF. NO. 600 SERIES (COMPONENT SIDE)
(FOIL SIDE)
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
AF AMP GAIN
AF AMP BIAS
VR602
VR601
AF GAIN CONTROL
IC601
IC604
IC607
PC1
PC3
PC4
PC5
PC2
P1
R1
R2
P601
P602
4
5
6
7
8
9
10
11
12
13
14



TP604 STOP
5.0V/20msec. div. 78Vp-p



TP605 STOP
0.5V/5msec. div. 1.2Vp-p



TP610 STOP
0.1V/20μsec. div. 0.25Vp-p

AUTO FOCUS C.B.A.

Transistor	
Q601	A-4 Ⓕ
Q602	D-4 Ⓕ
Q603	C-4 Ⓕ
Q604	B-5 Ⓕ
Q605	A-11 Ⓒ
Q606	A-5 Ⓕ
Q607	B-5 Ⓕ
Q608	A-11 Ⓒ
Q609	A-10 Ⓒ
Q610	B-1 Ⓕ
Q611	B-2 Ⓕ
Q612	B-14 Ⓒ
Q613	C-5 Ⓕ
Q614	D-6 Ⓕ
Q615	B-2 Ⓕ
Q616	C-2 Ⓕ
Q617	C-2 Ⓕ
Q618	C-2 Ⓕ
Q619	C-2 Ⓕ
Q620	D-5 Ⓕ
Q621	A-3 Ⓕ

Integrated Circuit	
IC601	B-12 Ⓒ
IC602	B-13 Ⓒ
IC603	C-9 Ⓒ
IC604	C-9 Ⓒ
IC605	C-3 Ⓕ
IC606	C-4 Ⓕ
IC607	A-13 Ⓒ

Test Point	
TP601	A-4 Ⓕ
TP601	A-11 Ⓒ
TP602	B-3 Ⓕ
TP602	B-12 Ⓒ
TP603	C-3 Ⓕ
TP603	C-12 Ⓒ
TP604	D-7 Ⓕ
TP604	D-8 Ⓒ
TP605	A-1 Ⓕ
TP605	A-14 Ⓒ
TP606	B-4 Ⓕ
TP606	B-12 Ⓒ
TP607	A-3 Ⓕ
TP607	A-13 Ⓒ
TP608	A-3 Ⓕ
TP608	A-13 Ⓒ
TP609	C-1 Ⓕ
TP609	C-14 Ⓒ
TP610	A-1 Ⓕ
TP610	A-14 Ⓒ
TP611	A-3 Ⓕ
TP611	A-12 Ⓒ

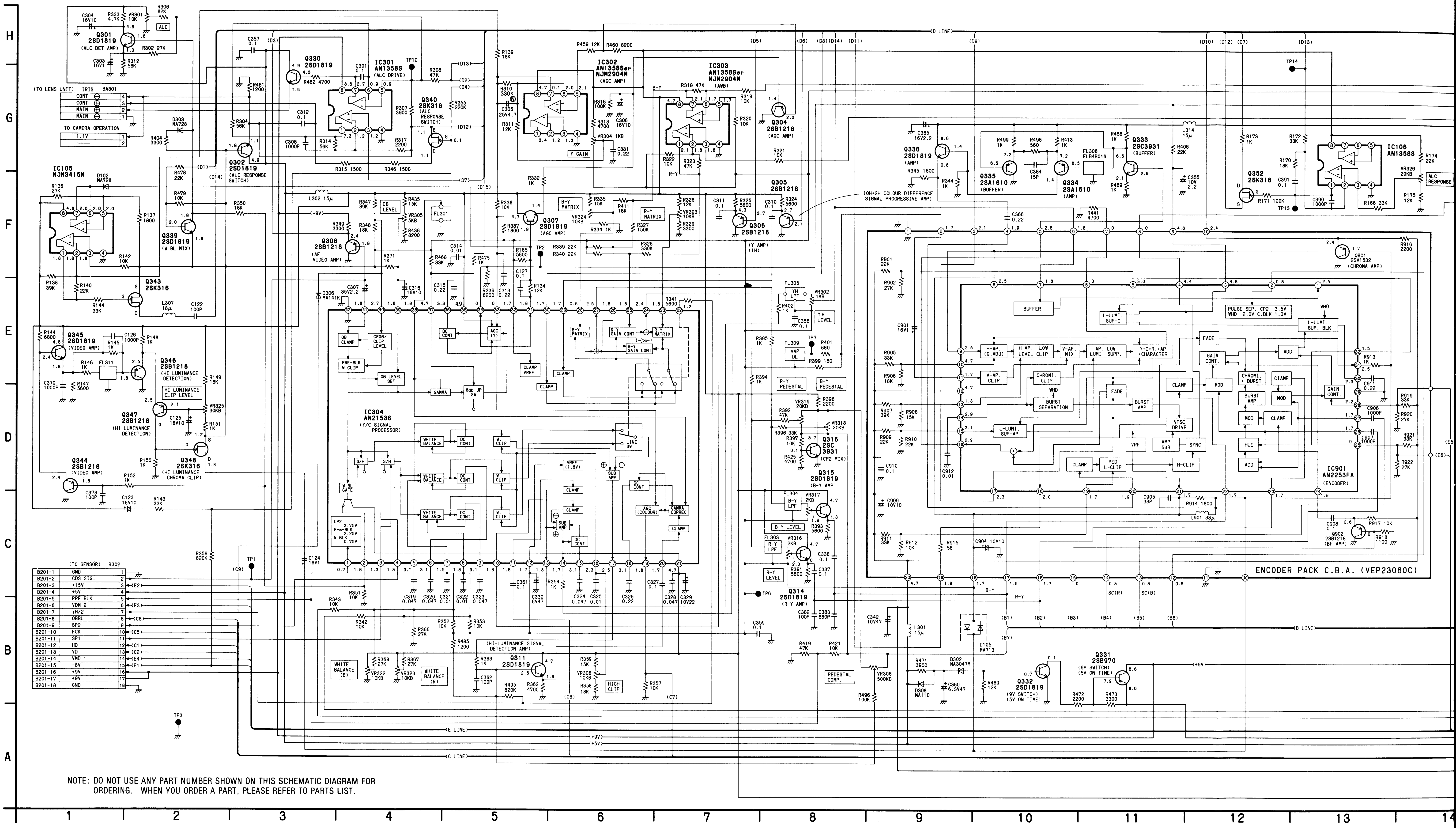
Adjustment	
C621	D-1 Ⓕ
C656	B-4 Ⓕ
VR601	D-9 Ⓒ
VR602	D-9 Ⓒ
VR603	D-5 Ⓕ

Connector	
P1	A-8
B601	D-2 Ⓕ
B601	D-14 Ⓒ
P601	A-5 Ⓕ
P601	A-11 Ⓒ
P602	A-5 Ⓕ
P602	A-10 Ⓒ
P603	C-7 Ⓕ
P603	C-8 Ⓒ
P604	C-6 Ⓕ
P604	C-9 Ⓒ

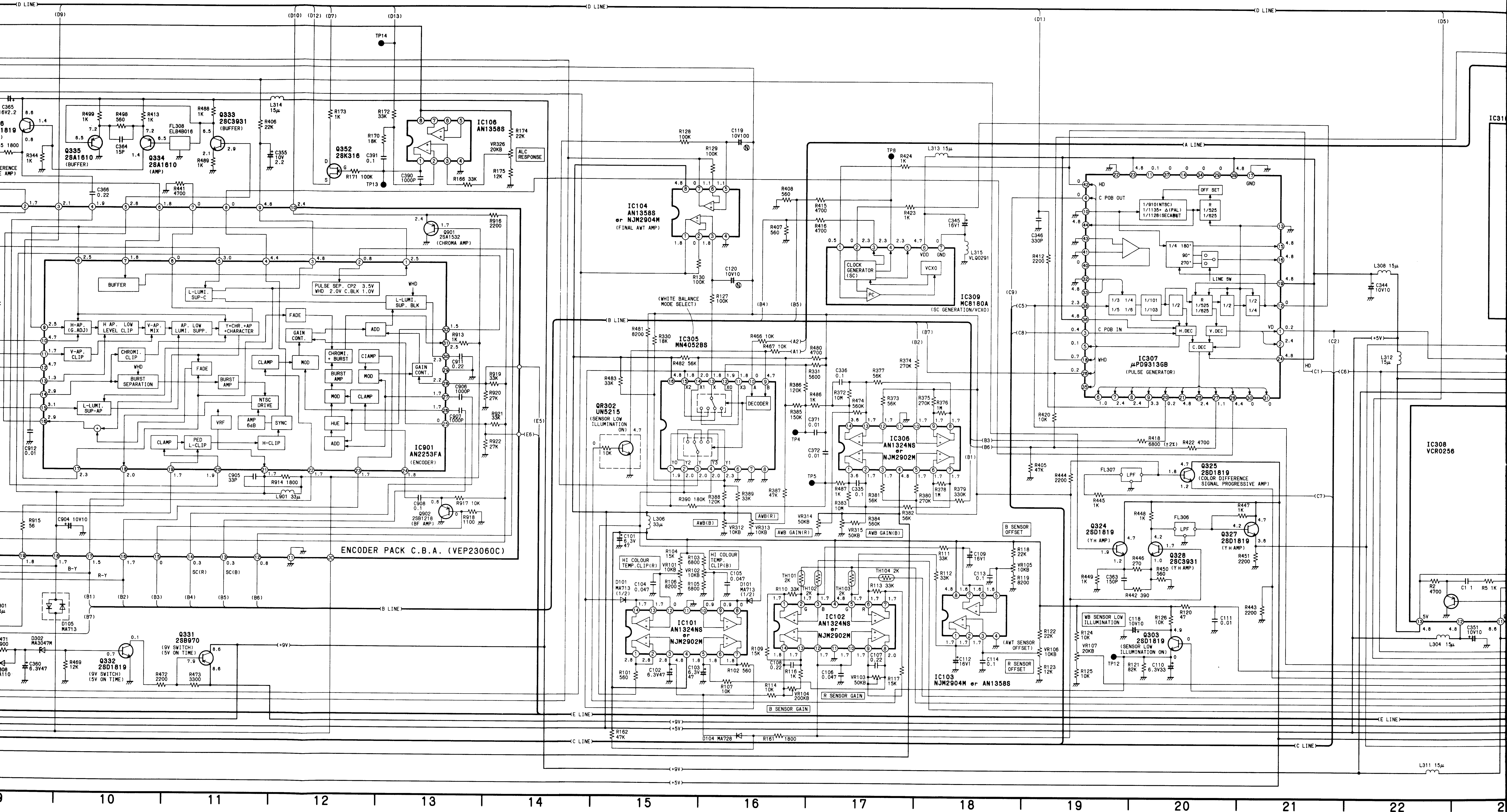
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

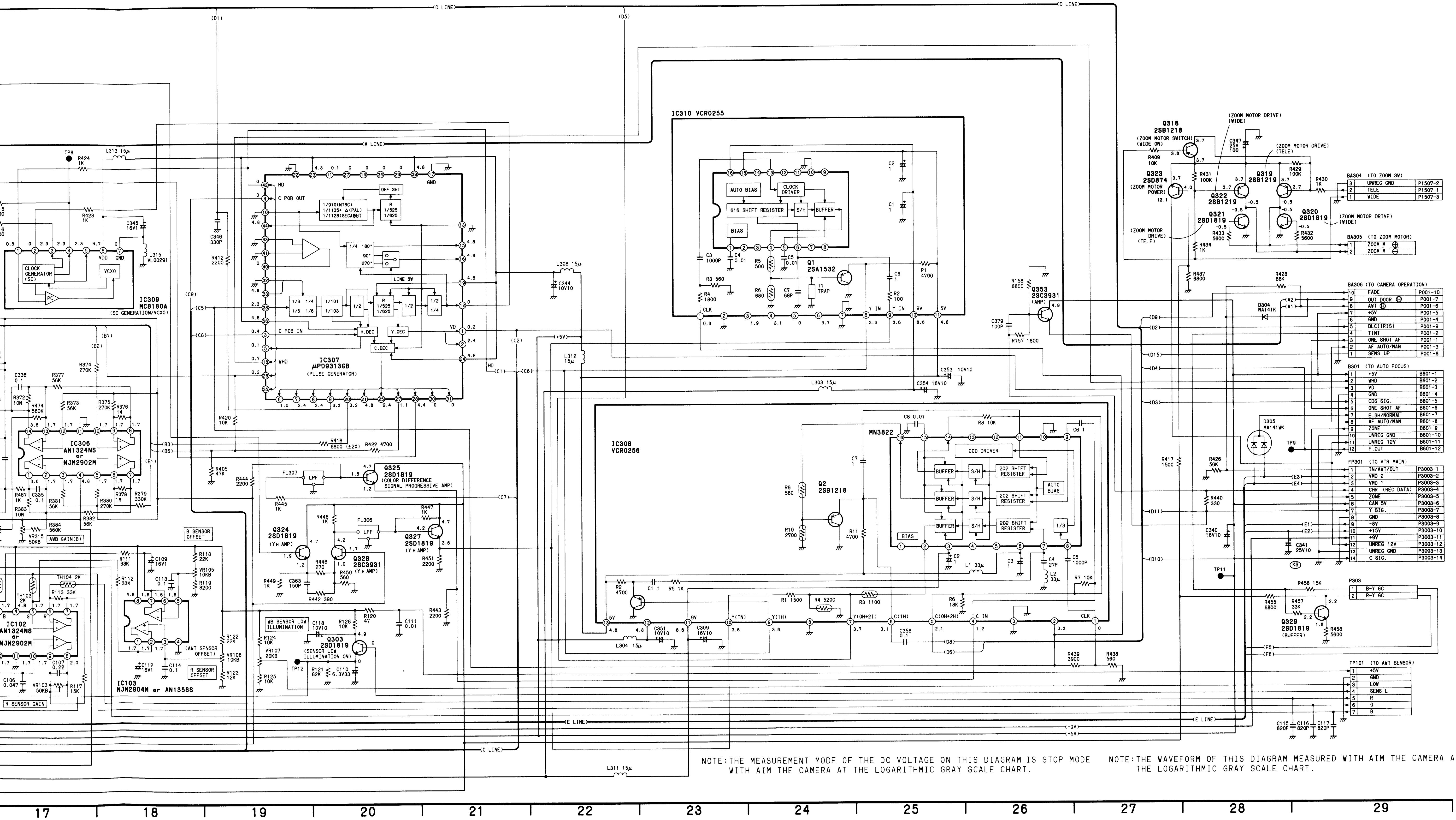
Next Page:
PROCESS & ENCODER PACK Section

3-12. PROCESS & ENCODER PACK SCHEMATIC DIAGRAM


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
Q301 2SD1819 (ALC DET AMP)
ALC
Q330 2SD1819
IC301 AN1358S (ALC DRIVE)
TP10
Q340 2SK316 (ALC RESPONSE SWITCH)
Q302 2SD1819 (ALC RESPONSE SWITCH)
(TO LENS UNIT) IRIS BA301
CONT
MAIN
TO CAMERA OPERATION
IC105 NJM3415M
D102 MA728
D303 MA728
Q339 2SD1819 (W BL MIX)
Q343 2SK316
L302 15μ
Q308 2SB1218 (AF VIDEO AMP)
CB LEVEL
FL301
IC302 AN1358Ser NJM2904M (AGC AMP)
Y GAIN
IC303 AN1358Ser NJM2904M (AWB)
Q304 2SB1218 (AGC AMP)
Q305 2SB1218
Q306 2SB1218 (Y AMP) (1H)
Q307 2SD1819 (AGC AMP)
B-Y MATRIX
R-Y MATRIX
TP2
(D LINE)
(0H+2H COLOUR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q336 2SD1819 (AMP)
Q335 2SA1610 (BUFFER)
Q334 2SA1610 (AMP)
FL308 ELB4B016
Q333 2SC3931 (BUFFER)
L314 15μ
Q352 2SK316
TP13
TP14
IC106 AN1358S
ALC RESPONSE
Q901 2SA1532 (CHROMA AMP)
Q345 2SD1819 (VIDEO AMP)
FL311
Q346 2SB1218 (HI LUMINANCE DETECTION)
HI LUMINANCE CLIP LEVEL
Q347 2SB1218 (HI LUMINANCE DETECTION)
Q348 2SK316 (HI LUMINANCE CHROMA CLIP)
Q344 2SB1218 (VIDEO AMP)
D306 MA141K
OB CLAMP
CPOB/CLIP LEVEL
PRE-BLK W.CLIP
OB LEVEL SET
GAMMA
6db UP SW
DC CONT
AGC (Y)
CLAMP VREF
CLAMP
B-Y MATRIX
B-Y GAIN CONT
R-Y MATRIX
R-Y GAIN CONT
IC304 AN2153S (Y/C SIGNAL PROCESSOR)
S/H
W.BL GATE
WHITE BALANCE
W. CLIP
VREF (1.8V)
LINE SW
SUB AMP
AGC (COLOUR)
GAMMA CORREC
CP2 3.75V Pre-BLK 2.25V W.BLK 0.75V
FL305 YH LPF
Y.H LEVEL
FL309 VAP DL
TP7
R-Y PEDESTAL
B-Y PEDESTAL
Q316 2SC3931 (CP2 MIX)
Q315 2SD1819 (B-Y AMP)
FL304 B-Y LPF
B-Y LEVEL
FL303 R-Y LPF
R-Y LEVEL
Q314 2SD1819 (R-Y AMP)
TP6
BUFFER
PULSE SEP. CP2 3.5V WHD 2.0V C.BLK 1.0V
L-LUMI. SUP-C
L-LUMI. SUP. BLK
H-AP. (G.ADJ)
H AP. LOW LEVEL CLIP
V-AP. MIX
AP. LOW LUMI. SUPP.
Y+CHR.+AP +CHARACTER
FADE
GAIN CONT.
ADD
V-AP. CLIP
CHROMI. CLIP
WHD
BURST SEPARATION
BURST AMP
MOD
CHROMI. + BURST
L-LUMI. SUP-AP
NTSC DRIVE
VRF
AMP 6dB
SYNC
HUE
H-CLIP
PED L-CLIP
IC901 AN2253FA (ENCODER)
Q902 2SB1218 (BF AMP)
L901 33μ
ENCODER PACK C.B.A. (VEP23060C)
(TO SENSOR) B302
B201-1 GND
B201-2 CDS SIG.
B201-3 +15V
B201-4 +5V
B201-5 PRE BLK
B201-6 VDM 2
B201-7 fH/2
B201-8 OBBL
B201-9 SP2
B201-10 FCK
B201-11 SP1
B201-12 HD
B201-13 VD
B201-14 VMD 1
B201-15 -8V
B201-16 +9V
B201-17 +9V
B201-18 GND
TP1
TP3
WHITE BALANCE (B)
WHITE BALANCE (R)
Q311 2SD1819 (HI-LUMINANCE SIGNAL DETECTION AMP)
HIGH CLIP
PEDESTAL COMP.
L301 15μ
D105 MA713
D302 MA3047M
D308 MA110
Q332 2SD1819 (9V SWITCH) (5V ON TIME)
Q331 2SB970 (9V SWITCH) (5V ON TIME)
(B LINE)
(E LINE)
(+9V)
(+5V)
(C LINE)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


D LINE
ENCODER PACK C.B.A. (VEP23060C)
IC901
AN2253FA
(ENCODER)
IC106
AN1358S
ALC RESPONSE
Q352
2SK316
Q333
2SC3931
(BUFFER)
Q335
2SA1610
(BUFFER)
Q334
2SA1610
(AMP)
FL308
ELB4B016
Q901
2SA1532
(CHROMA AMP)
Q902
2SB1218
(BF AMP)
BUFFER
L-LUMI. SUP-C
PULSE SEP. CP2 3.5V
WHD 2.0V C.BLK 1.0V
L-LUMI. SUP. BLK
H-AP. (G.ADJ)
H AP. LOW LEVEL CLIP
V-AP. MIX
AP. LOW LUMI. SUPP.
Y+CHR.+AP +CHARACTER
V-AP. CLIP
CHROMI. CLIP
BURST SEPARATION
L-LUMI. SUP-AP
FADE
BURST AMP
GAIN CONT.
ADD
CLAMP
MOD
CHROMI. + BURST
NTSC DRIVE
VRF
AMP 6dB
SYNC
PED L-CLIP
H-CLIP
HUE
TP13
TP14
Q331
2SB970
(9V SWITCH)
(5V ON TIME)
Q332
2SD1819
(9V SWITCH)
(5V ON TIME)
D105
MA713
D302
MA3047M
B-Y
R-Y
B LINE
IC104
AN1358S
or NJM2904M
(FINAL AWT AMP)
(WHITE BALANCE MODE SELECT)
IC305
MN4052BS
DECODER
QR302
UN5215
(SENSOR LOW ILLUMINATION ON)
IC309
MC6180A
(SC GENERATION/VCXO)
CLOCK GENERATOR (SC)
VCXO
PC
TP8
TP4
TP5
IC306
AN1324NS
or
NJM2902M
AWB(B)
AWB(R)
AWB GAIN(R)
AWB GAIN(B)
HI COLOUR TEMP.CLIP(R)
HI COLOUR TEMP. CLIP(B)
IC101
AN1324NS
or
NJM2902M
IC102
AN1324NS
or
NJM2902M
B SENSOR GAIN
R SENSOR GAIN
B SENSOR OFFSET
R SENSOR OFFSET
(AWT SENSOR OFFSET)
IC103
NJM2904M or AN1358S
D104 MA728
E LINE
C LINE
A LINE
IC307
μPD9313GB
(PULSE GENERATOR)
C POB OUT
C POB IN
OFF SET
1/910(NTSC)
1/1135+ Δ(PAL)
1/1128(SECAM)
LINE SW
H.DEC
V.DEC
C.DEC
WHD
GND
Q325
2SD1819
(COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
FL307
FL306
LPF
Q324
2SD1819
(YH AMP)
Q328
2SC3931
(YH AMP)
Q327
2SD1819
(YH AMP)
WB SENSOR LOW ILLUMINATION
Q303
2SD1819
(SENSOR LOW ILLUMINATION ON)
TP12
IC308
VCR0256
IC310
10
11
12
13
14
15
16
17
18
19
20
21
22


D LINE
A LINE
E LINE
C LINE
+9V
+5V
IC309
MC6180A
(SC GENERATION/VCXO)
CLOCK GENERATOR (SC)
VCXO
PC
L315 VLQ0291
IC307
μPD9313GB
(PULSE GENERATOR)
C POB OUT
C POB IN
1/910(NTSC)
1/1135+ Δ(PAL)
1/1128(SECAM)
OFF SET
1/4 180°
LINE SW
H.DEC
V.DEC
C.DEC
IC306
AN1324NS
or
NJM2902M
IC102
AN1324NS
or
NJM2902M
IC103
NJM2904M or AN1358S
AWB GAIN(B)
B SENSOR OFFSET
R SENSOR OFFSET
R SENSOR GAIN
(AWT SENSOR OFFSET)
WB SENSOR LOW ILLUMINATION
Q303
2SD1819
(SENSOR LOW ILLUMINATION ON)
TP12
Q325
2SD1819
(COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q324
2SD1819
(YH AMP)
Q328
2SC3931
(YH AMP)
Q327
2SD1819
(YH AMP)
FL307
FL306
LPF
IC310 VCR0255
AUTO BIAS
CLOCK DRIVER
616 SHIFT RESISTER
S/H
BUFFER
BIAS
Q1
2SA1532
T1 TRAP
IC308
VCR0256
MN3822
CCD DRIVER
202 SHIFT RESISTER
AUTO BIAS
1/3
Q2
2SB1218
Q353
2SC3931
(AMP)
Q318
2SB1218
(ZOOM MOTOR SWITCH)
(WIDE ON)
Q323
2SD874
(ZOOM MOTOR POWER)
Q322
2SB1219
Q319
2SB1219
Q321
2SD1819
Q320
2SD1819
(ZOOM MOTOR DRIVE)
(TELE)
(WIDE)
D304 MA141K
D305 MA141WK
TP9
TP11
Q329
2SD1819
(BUFFER)
BA304 (TO ZOOM SW)
3 UNREG GND P1507-2
2 TELE P1507-1
1 WIDE P1507-3
BA305 (TO ZOOM MOTOR)
1 ZOOM M ⊕
2 ZOOM M ⊖
BA306 (TO CAMERA OPERATION)
10 FADE P001-10
9 OUT DOOR Ⓗ P001-7
8 AWT Ⓗ P001-6
7 +5V P001-5
6 GND P001-4
5 BLC(IRIS) P001-9
4 TINT P001-2
3 ONE SHOT AF P001-1
2 AF AUTO/MAN P001-3
1 SENS UP P001-8
B301 (TO AUTO FOCUS)
1 +5V B601-1
2 WHD B601-2
3 VD B601-3
4 GND B601-4
5 CDS SIG. B601-5
6 ONE SHOT AF B601-6
7 E.SH/NORMAL B601-7
8 AF AUTO/MAN B601-8
9 ZONE B601-9
10 UNREG GND B601-10
11 UNREG 12V B601-11
12 F.OUT B601-12
FP301 (TO VTR MAIN)
1 IN/AWT/OUT P3003-1
2 VMD 2 P3003-2
3 VMD 1 P3003-3
4 CHR (REC DATA) P3003-4
5 ZONE P3003-5
6 CAM 5V P3003-6
7 Y SIG. P3003-7
8 GND P3003-8
9 -8V P3003-9
10 +15V P3003-10
11 +9V P3003-11
12 UNREG 12V P3003-12
13 UNREG GND P3003-13
14 C SIG. P3003-14
P303
1 B-Y GC
2 R-Y GC
FP101 (TO AWT SENSOR)
1 +5V
2 GND
3 LOW
4 SENS L
5 R
6 G
7 B
KS
17
18
19
20
21
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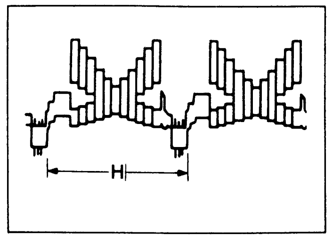
23
24
25
26
27
28
29

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

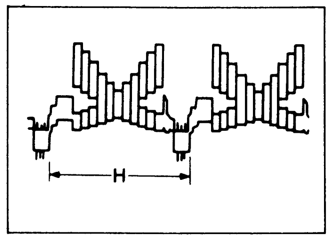
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

3-13. PROCESS C.B.A. (VEP23080A) & ENCODER PACK C.B.A. (VEP23060C)

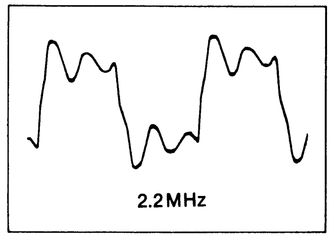
PROCESS CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 300 Series)



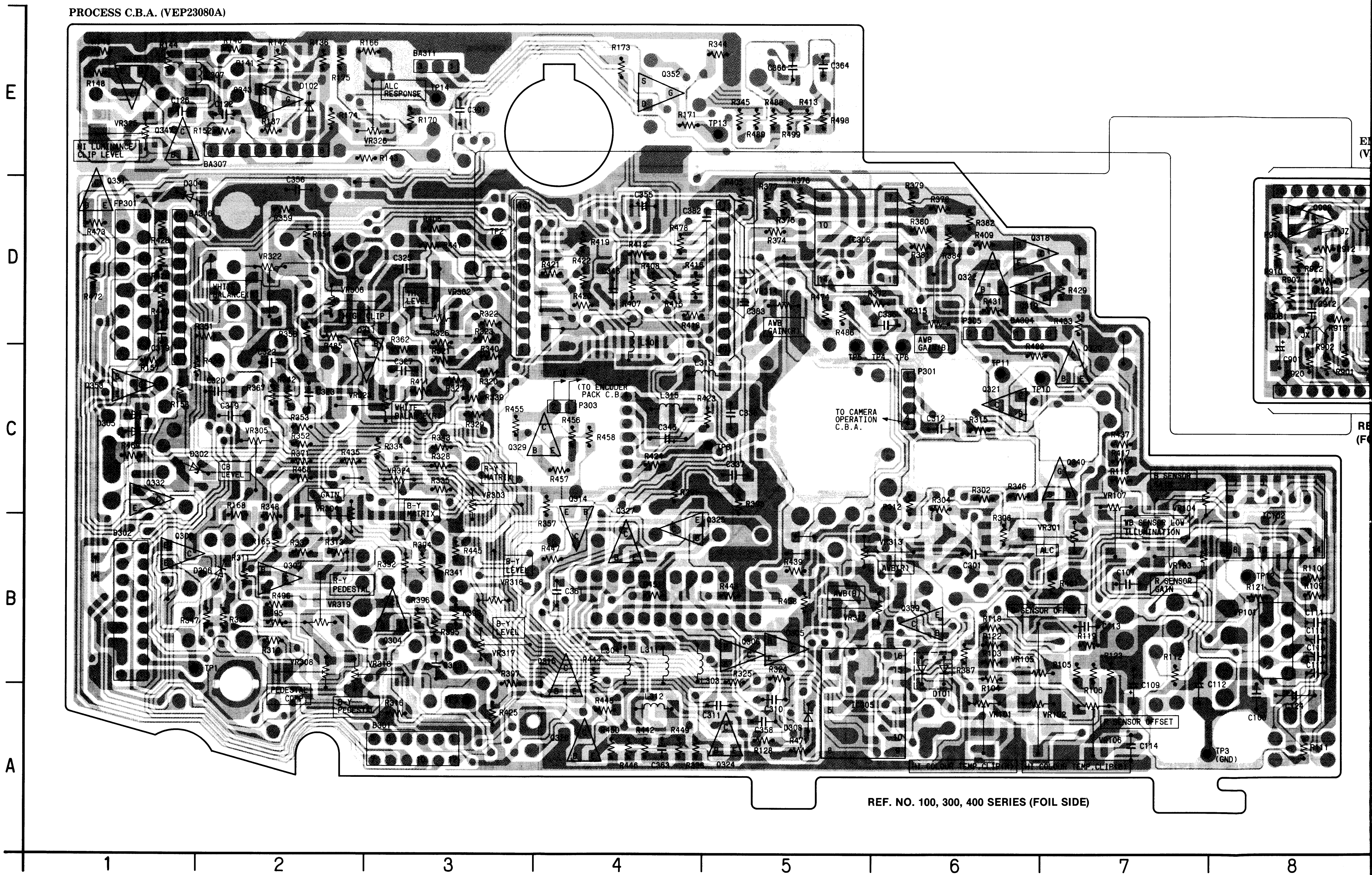
TP301 STOP
0.1V/20µsec. div. 0.35Vp-p

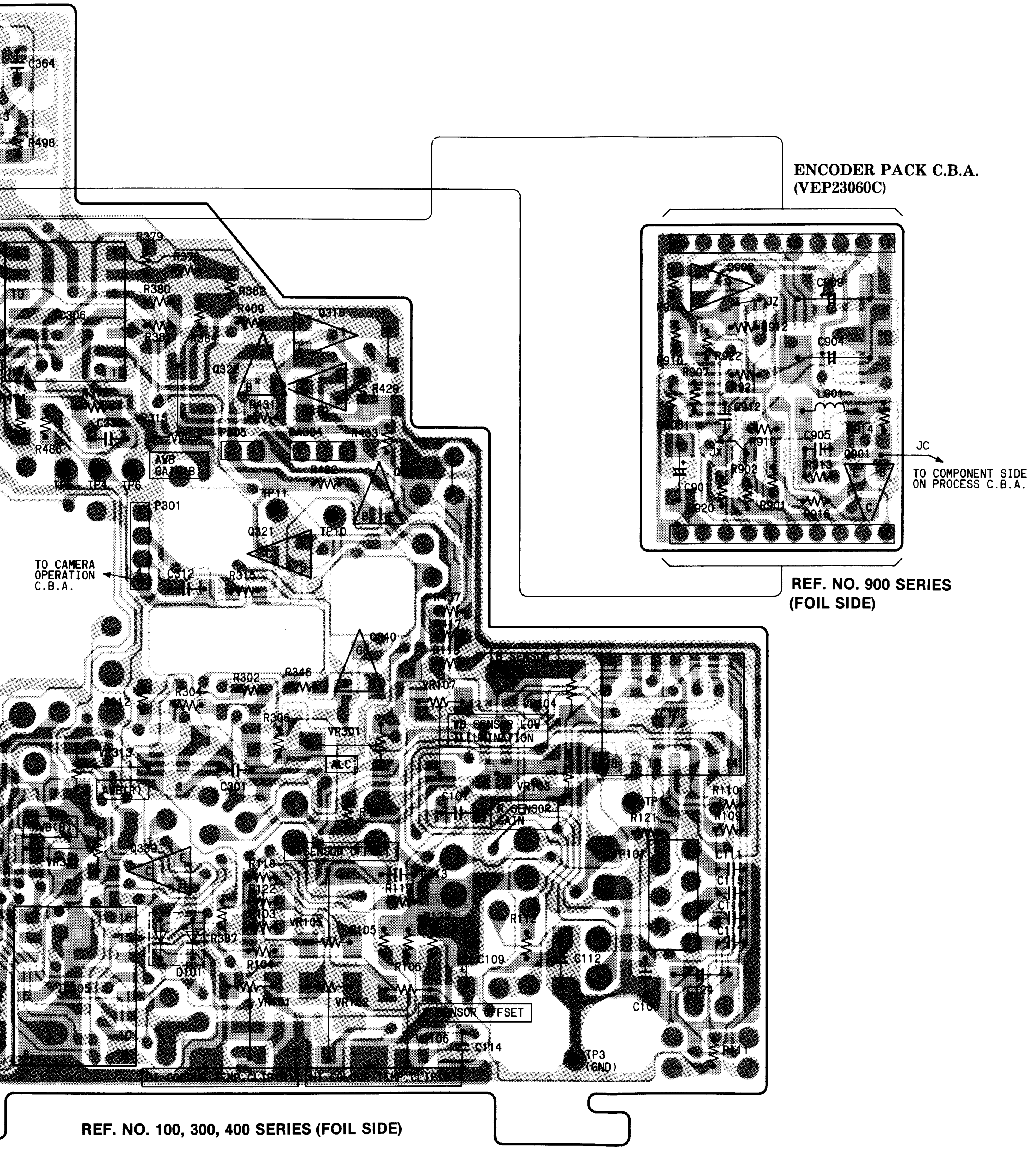


TP302 STOP
0.1V/20µsec. div. 0.38Vp-p



TP308 STOP
2.0V/50nsec. div. 7Vp-p

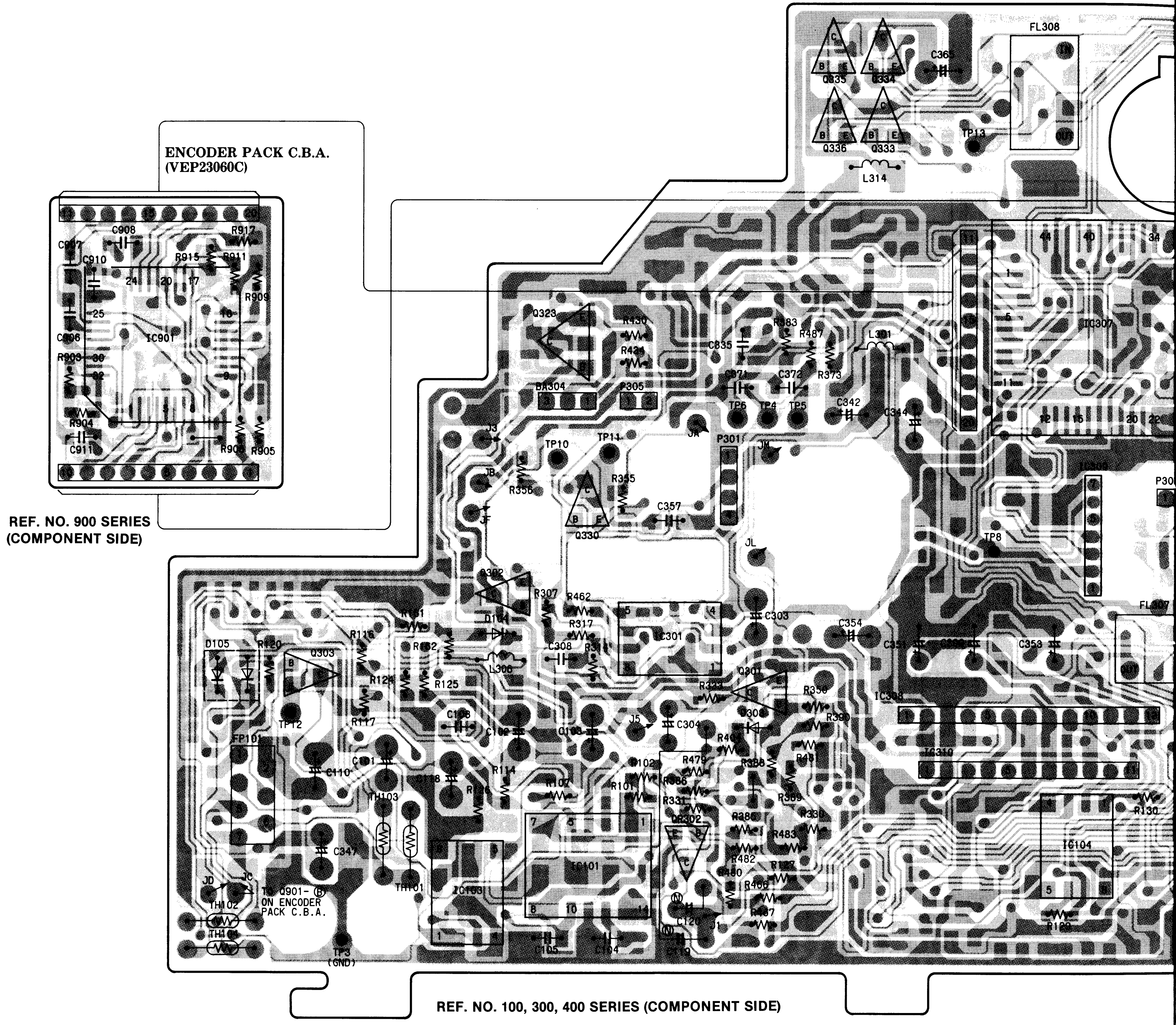

PROCESS C.B.A. (VEP23080A)
E
D
C
B
A
1
2
3
4
5
6
7
8
ALC RESPONSE
HI LUMINANCE CLIP LEVEL
WHITE BALANCE
WHITE CLIP
WHITE LEVEL
(TO ENCODER PACK C.B.)
TO CAMERA OPERATION C.B.A.
AWB GAIN(R)
AWB GAIN(B)
CB LEVEL
GAIN
B-Y MATRIX
R-Y MATRIX
R-Y PEDESTAL
B-Y LEVEL
B-Y PEDESTAL
PEDESTAL COM
AWB(R)
AWB(B)
ALC
SENSOR OFFSET
B SENSOR OFFSET
R SENSOR GAIN
WB SENSOR LOW ILLUMINATION
TP3 (GND)
REF. NO. 100, 300, 400 SERIES (FOIL SIDE)


TO CAMERA OPERATION C.B.A.
TO COMPONENT SIDE ON PROCESS C.B.A.
JC
TP3 (GND)
AWB GAIN(B)
WB SENSOR LOW ILLUMINATION
ALC
R SENSOR GAIN
SENSOR OFFSET
IC901

ENCODER PACK C.B.A.
(VEP23060C)

REF. NO. 900 SERIES
(FOIL SIDE)

REF. NO. 100, 300, 400 SERIES (FOIL SIDE)


TO Q901-(B) ON ENCODER PACK C.B.A.
TP3 (GND)
FL308
FL307
IC901
IC307
IC310
IC104
IC101

ENCODER PACK C.B.A.
(VEP23060C)

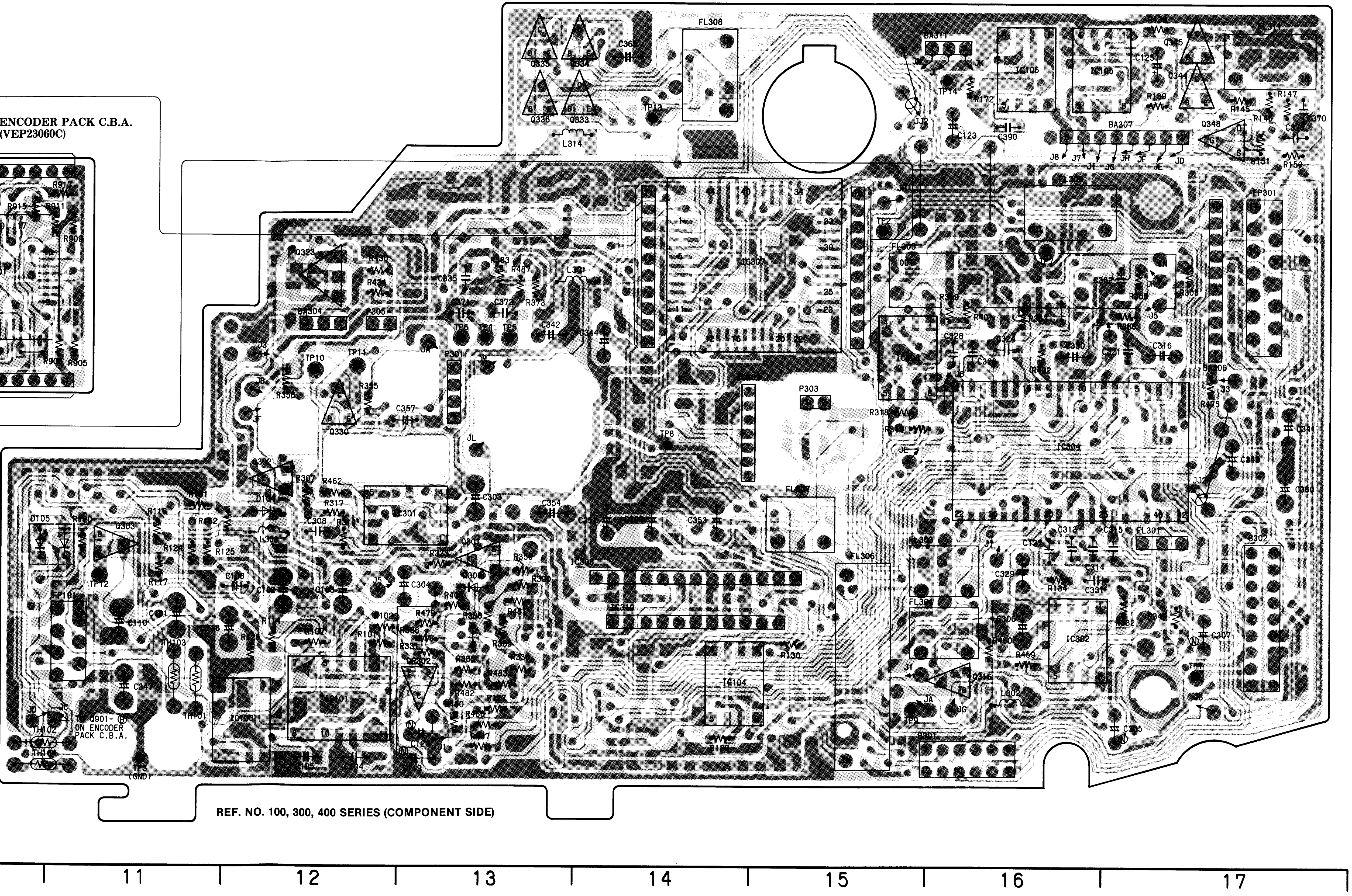
REF. NO. 900 SERIES
(COMPONENT SIDE)

REF. NO. 100, 300, 400 SERIES (COMPONENT SIDE)

6 7 8 9 10 11 12 13 14

PROCESS C.B.A. (VEP23080A)

ENCODER PACK C.B.A.
(VEP23060C)


TO Q901-B
ON ENCODER
PACK C.B.A.
TP3
(GND)
FL308
BA311
IC106
IC105
BA307
IC307
IC304
IC302
IC301
IC104
IC101
IC303
IC308
IC310
FP101
FP301
P301
P303
BA304
P305
B302
Q323
Q330
Q303
TH101
TH102
TH103
TH104
11
12
13
14
15
16
17

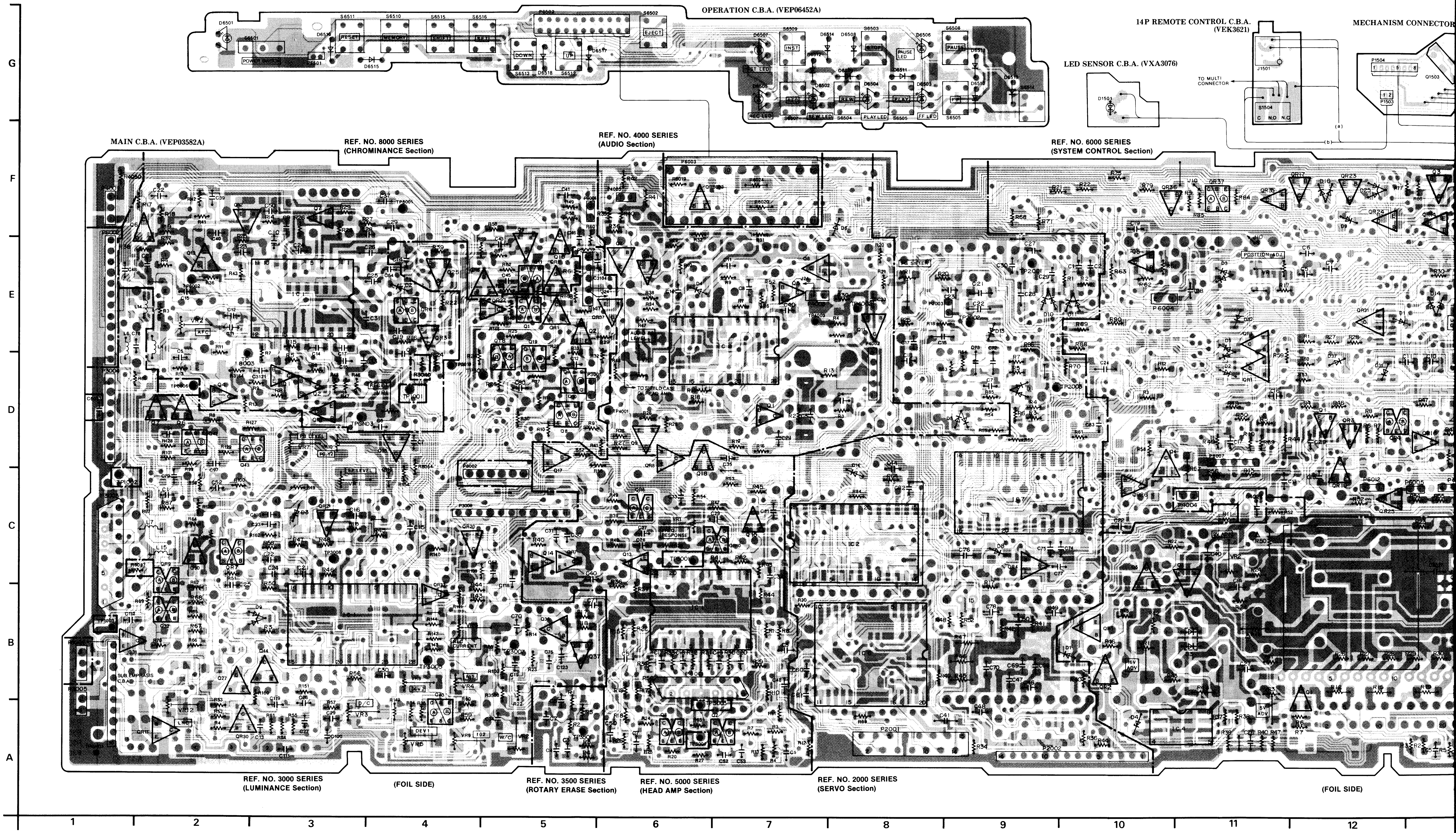
REF. NO. 100, 300, 400 SERIES (COMPONENT SIDE)

PROCESS & ENCODER PACK C.B.A.	
Transistor	
Q301	B-13 ©
Q302	C-12 ©
Q303	B-11 ©
Q304	B-3 Ⓕ
Q305	B-5 Ⓕ
Q306	B-5 Ⓕ
Q307	B-2 Ⓕ
Q308	B-1 Ⓕ
Q311	D-3 Ⓕ
Q314	C-4 Ⓕ
Q315	B-4 Ⓕ
Q316	B-16 ©
Q318	D-6 Ⓕ
Q319	D-7 Ⓕ
Q320	C-7 Ⓕ
Q321	C-6 Ⓕ
Q322	D-6 Ⓕ
Q323	D-12 ©
Q324	A-5 Ⓕ
Q325	B-4 Ⓕ
Q327	B-4 Ⓕ
Q328	A-4 Ⓕ
Q329	C-4 Ⓕ
Q330	C-12 ©
Q331	D-1 Ⓕ
Q332	C-1 Ⓕ
Q333	E-13 ©
Q334	E-13 ©
Q335	E-13 ©
Q336	E-13 ©
Q339	B-6 Ⓕ
Q340	C-7 Ⓕ
Q343	E-2 Ⓕ
Q344	E-17 ©
Q345	E-17 ©
Q346	E-1 Ⓕ
Q347	E-1 Ⓕ
Q348	E-17 ©
Q352	E-4 Ⓕ
Q353	C-1 Ⓕ
Q901	C-9 Ⓕ
Q902	D-6 Ⓕ
Transistor & Resistor	
QR302	B-13 ©
Integrated Circuit	
IC101	A-12 ©
IC102	B-8 Ⓕ
IC103	A-12 ©
IC104	B-14 ©
IC105	E-16 ©
IC106	E-16 ©
IC301	B-13 ©
IC302	B-16 ©
IC303	C-15 ©
IC304	C-16 ©
IC305	A-5 Ⓕ
IC306	D-5 Ⓕ
IC307	D-15 ©
IC308	B-14 ©
IC309	C-14 ©
IC310	B-14 ©
IC901	D-10 ©
Test Point	
TP1	B-2 Ⓕ
TP1	B-17 ©
TP2	D-3 Ⓕ
TP2	D-15 ©
TP3	A-8 Ⓕ
TP3	A-11 ©
TP4	C-6 Ⓕ
TP4	C-13 ©
TP5	C-5 Ⓕ
TP5	C-13 ©
TP6	C-6 Ⓕ
TP6	C-13 ©
TP7	D-2 Ⓕ
TP7	D-16 ©
TP8	C-5 Ⓕ
TP8	C-14 ©
TP9	A-3 Ⓕ
TP9	A-15 ©
TP10	C-7 Ⓕ
TP10	C-12 ©
TP11	C-6 Ⓕ
TP11	C-12 ©
TP12	B-8 Ⓕ
TP12	B-11 ©
TP13	E-5 Ⓕ
TP13	E-14 ©
TP14	E-3 Ⓕ
TP14	E-16 ©
Adjustment	
VR101	A-6 Ⓕ
VR102	B-6 Ⓕ
VR103	B-7 Ⓕ
VR104	C-7 Ⓕ
VR105	B-6 Ⓕ
VR106	A-7 Ⓕ
VR107	C-7 Ⓕ
VR301	B-7 Ⓕ
VR302	D-3 Ⓕ
VR303	C-3 Ⓕ
VR304	C-2 Ⓕ
VR305	C-2 Ⓕ
VR306	D-2 Ⓕ
VR308	B-2 Ⓕ
VR312	B-5 Ⓕ
VR313	B-6 Ⓕ
VR314	D-5 Ⓕ
VR315	D-6 Ⓕ
VR316	B-3 Ⓕ
VR317	B-3 Ⓕ
VR318	B-3 Ⓕ
VR319	B-2 Ⓕ
VR322	D-2 Ⓕ
VR323	C-3 Ⓕ
VR324	C-3 Ⓕ
VR325	E-1 Ⓕ
VR326	E-3 Ⓕ
Connector	
B301	A-3 Ⓕ
B301	A-16 ©
B302	B-1 Ⓕ
B302	B-17 ©
BA304	D-6 Ⓕ
BA304	D-12 ©
BA306	D-1 Ⓕ
BA306	C-17 ©
BA307	E-2 Ⓕ
BA307	E-17 ©
BA311	E-3 Ⓕ
BA311	E-16 ©
FP101	B-8 Ⓕ
FP101	B-11 ©
FP301	D-1 Ⓕ
FP301	D-17 ©
P301	C-6 Ⓕ
P301	C-13 ©
P303	C-4 Ⓕ
P303	C-15 ©
P305	D-6 Ⓕ
P305	D-12 ©

ADDRESS INFORMATION
© ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

Next Page:
MAIN & OPERATION Section

3-14. MAIN [POWER SUPPLY, SYSTEM CONTROL, SERVO, LUMINANCE & CHROMINANCE, HEAD AMP AUDIO Section] C.B.A. (VEP03582A), OPERATION C.B.A. (VEP06452A) & SUB EMPHASIS C.B.A. (VEP03597A)


OPERATION C.B.A. (VEP06452A)
14P REMOTE CONTROL C.B.A. (VEK3621)
MECHANISM CONNECTOR
LED SENSOR C.B.A. (VXA3076)
TO MULTI CONNECTOR
MAIN C.B.A. (VEP03582A)
REF. NO. 8000 SERIES (CHROMINANCE Section)
REF. NO. 4000 SERIES (AUDIO Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 3000 SERIES (LUMINANCE Section)
(FOIL SIDE)
REF. NO. 3500 SERIES (ROTARY ERASE Section)
REF. NO. 5000 SERIES (HEAD AMP Section)
REF. NO. 2000 SERIES (SERVO Section)
(FOIL SIDE)
SUB EMPHASIS C.B.A.
POWER SWITCH
RESET
MEMORY
SHIFT
SET
EJECT
DOWN
UP
INST
STOP
PAUSE
PAUSE LED
REC LED
REW
REW LED
PLAY
PLAY LED
FF
FF LED
POSITION ADJ.
AFC
PB LEVEL
EE LEVEL
REC CURRENT
FREQ RESPONSE
AUDIO LEVEL
D/C
DEV
VR3
12V ADJ
5V ADJ
TO SHIELD CASE
G
F
E
D
C
B
A
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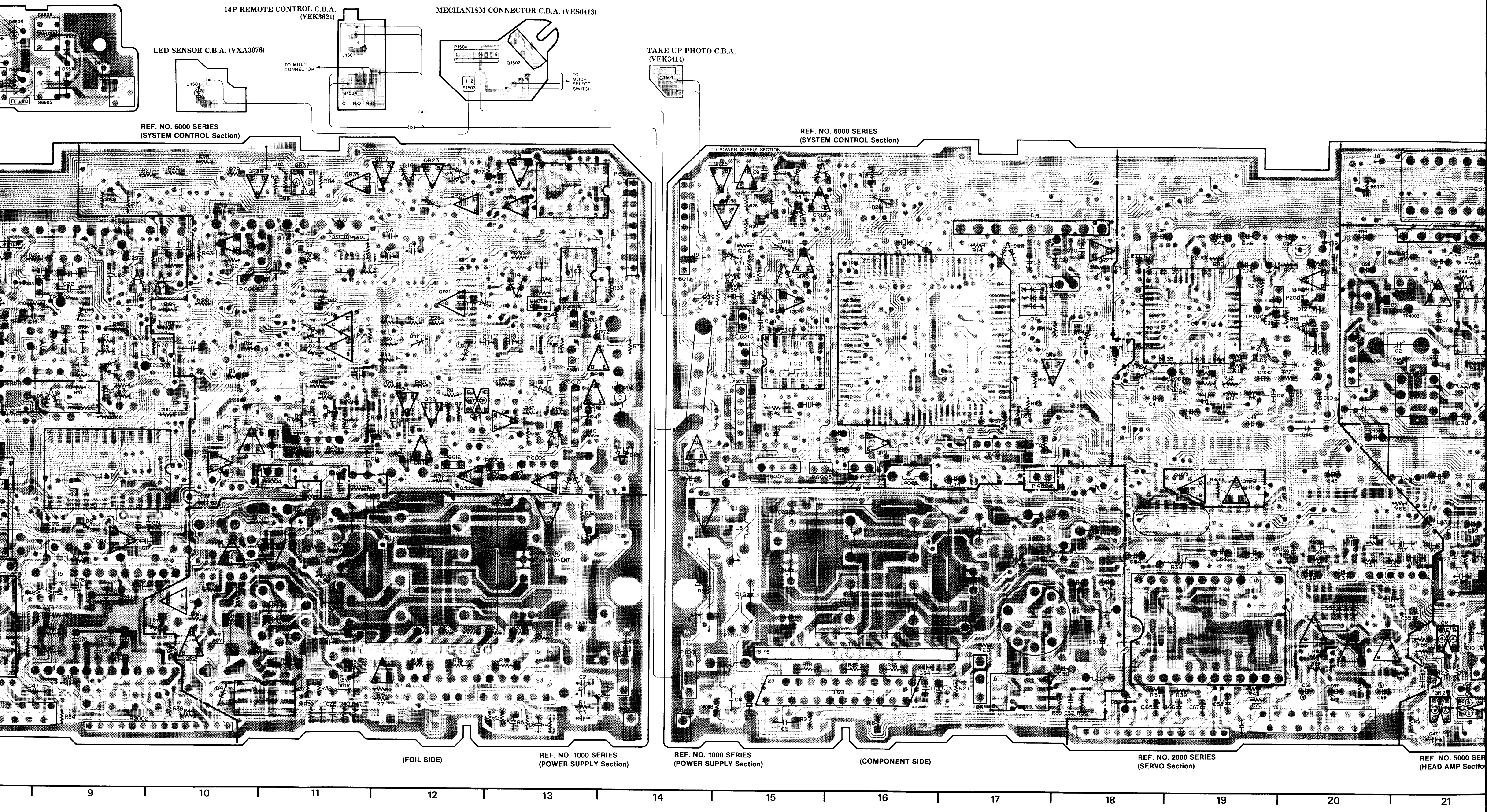
12

AMP AUDIO Section]


14P REMOTE CONTROL C.B.A. (VEK3621)
MECHANISM CONNECTOR C.B.A. (VES0413)
LED SENSOR C.B.A. (VXA3076)
TAKE UP PHOTO C.B.A. (VEK3414)
TO MULTI CONNECTOR
TO MODE SELECT SWITCH
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
TO POWER SUPPLY SECTION
REF. NO. 1000 SERIES (POWER SUPPLY Section)
REF. NO. 1000 SERIES (POWER SUPPLY Section)
(FOIL SIDE)
(COMPONENT SIDE)
REF. NO. 2000 SERIES (SERVO Section)
REF. NO. 5000 SER (HEAD AMP Section
PAUSE
FF LED
S6508
S6505
D1501
J1501
S1504
P1504
P1503
Q1503
Q1501
POSITION ADJ.
UNDER
IC1
IC2
IC3
IC4
P2002
P2001
9
10
11
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14
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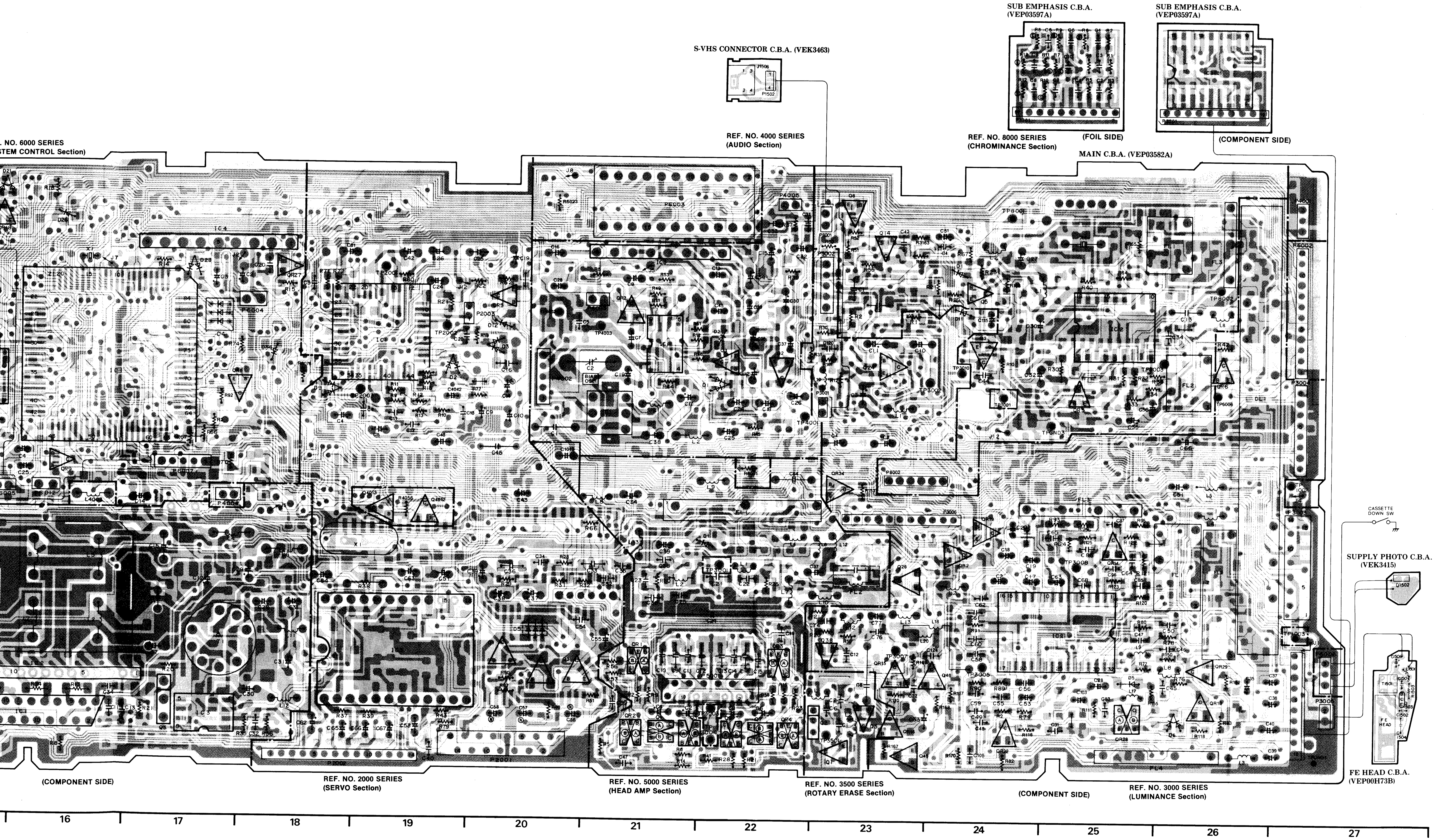
21


S-VHS CONNECTOR C.B.A. (VEK3463)
SUB EMPHASIS C.B.A. (VEP03597A)
(FOIL SIDE)
SUB EMPHASIS C.B.A. (VEP03597A)
(COMPONENT SIDE)
. NO. 6000 SERIES
STEM CONTROL Section)
REF. NO. 4000 SERIES
(AUDIO Section)
REF. NO. 8000 SERIES
(CHROMINANCE Section)
MAIN C.B.A. (VEP03582A)
CASSETTE DOWN SW
SUPPLY PHOTO C.B.A. (VEK3415)
FE HEAD C.B.A. (VEP00H73B)
(COMPONENT SIDE)
REF. NO. 2000 SERIES
(SERVO Section)
REF. NO. 5000 SERIES
(HEAD AMP Section)
REF. NO. 3500 SERIES
(ROTARY ERASE Section)
(COMPONENT SIDE)
REF. NO. 3000 SERIES
(LUMINANCE Section)
16
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POWER SUPPLY Section

Transistor	
Q1001	B-12 Ⓕ
Q1002	C-14 Ⓒ
Q1003	A-17 Ⓒ
Q1004	C-13 Ⓕ
Q1005	B-11 Ⓕ
Q1007	C-11 Ⓕ
Transistor & Resistor	
QR1001	B-10 Ⓕ
QR1002	B-10 Ⓕ
Integrated Circuit	
IC1001	A-16 Ⓒ
IC1002	B-16 Ⓒ
IC1003	A-17 Ⓒ
IC1004	A-11 Ⓕ
Test Point	
TP1001	D-4 Ⓕ
TP1001	D-24 Ⓒ
TP1002	C-1 Ⓕ
TP1002	C-27 Ⓒ
TP1003	B-1 Ⓕ
TP1003	B-27 Ⓒ
TP1004	B-13 Ⓕ
TP1004	B-15 Ⓒ
Adjustment	
VR1001	B-10 Ⓕ
VR1002	C-11 Ⓕ
VR1003	B-11 Ⓕ
Connector	
P1001	B-14 Ⓕ
P1001	B-14 Ⓒ
P1003	A-14 Ⓕ
P1003	A-14 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SERVO Section

Transistor	
Q2001	B-20 Ⓒ
Q2002	B-20 Ⓒ
Q2003	B-20 Ⓒ
Transistor & Resistor	
QR2004	C-9 Ⓕ
QR2005	E-20 Ⓒ
Integrated Circuit	
IC2001	E-19 Ⓒ
IC2002	C-8 Ⓕ
IC2005	B-19 Ⓒ
IC2006	B-8 Ⓕ
IC2007	C-9 Ⓕ
Test Point	
TP2001	E-9 Ⓕ
TP2001	E-19 Ⓒ
TP2002	E-9 Ⓕ
TP2002	E-19 Ⓒ
TP2003	D-9 Ⓕ
TP2003	D-19 Ⓒ
Adjustment	
VR2001	E-8 Ⓕ
Connector	
P2001	A-8 Ⓕ
P2001	A-20 Ⓒ
P2002	A-9 Ⓕ
P2002	A-18 Ⓒ
P2003	E-8 Ⓕ
P2003	E-20 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SYSTEM CONTROL Section

Transistor	
Q1501	G-14
Q1502	C-27
Q1503	G-13
Q3501	A-23 Ⓒ
Q3502	A-23 Ⓒ
Q3503	A-23 Ⓒ
Q6001	D-12 Ⓕ
Q6002	C-13 Ⓕ
Q6003	F-13 Ⓕ
Q6004	D-10 Ⓕ
Q6005	E-10 Ⓕ
Transistor & Resistor	
QR6001	D-11 Ⓕ
QR6003	D-12 Ⓕ
QR6004	D-12 Ⓕ
QR6005	E-11 Ⓕ
QR6006	D-17 Ⓒ
QR6009	D-16 Ⓒ
QR6010	F-15 Ⓒ
QR6011	C-14 Ⓒ
QR6012	D-13 Ⓕ
QR6013	D-13 Ⓕ
QR6014	F-13 Ⓕ
QR6015	E-15 Ⓒ
QR6016	D-13 Ⓕ
QR6017	F-12 Ⓕ
QR6018	F-15 Ⓒ
QR6019	C-12 Ⓕ
QR6023	F-12 Ⓕ
QR6024	F-12 Ⓕ
QR6025	C-12 Ⓕ
QR6026	C-10 Ⓕ
QR6027	E-18 Ⓒ
QR6028	F-15 Ⓒ
QR6029	F-15 Ⓒ
QR6030	E-15 Ⓒ
QR6031	E-12 Ⓕ
QR6033	F-6 Ⓕ
QR6035	F-11 Ⓕ
QR6036	F-10 Ⓕ
QR6037	F-11 Ⓕ

Integrated Circuit	
IC6001	D-16 Ⓒ
IC6002	D-15 Ⓒ
IC6003	E-13 Ⓕ
IC6004	F-17 Ⓒ
IC6005	F-13 Ⓕ
Test Point	
TP3501	A-5 Ⓕ
TP3501	A23 Ⓒ
TP6006	D-2 Ⓕ
TP6006	D-26 Ⓒ
Adjustment	
VR6001	E-11 Ⓕ
VR6002	E-13 Ⓕ
Connector	
P1503	G-12
P1504	G-12
P6001	D-13 Ⓕ
P6001	D-15 Ⓒ
P6002	F-1 Ⓕ
P6002	F-27 Ⓒ
P6003	F-6 Ⓕ
P6003	F-21 Ⓒ
P6004	E-10 Ⓕ
P6004	E-18 Ⓒ
P6005	C-13 Ⓕ
P6005	C-15 Ⓒ
P6006	B-1 Ⓕ
P6006	B-27 Ⓒ
P6007	D-11 Ⓕ
P6007	D-17 Ⓒ
P6009	C-13 Ⓕ
P6009	C-15 Ⓒ
P6010	D-13 Ⓕ
P6010	D-15 Ⓒ
P6011	F-14 Ⓕ
P6011	E-14 Ⓒ
P6012	C-12 Ⓕ
P6012	C-16 Ⓒ
P6013	E-13 Ⓕ
P6013	E-15 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

AUDIO Section

Transistor	
Q1503	B-27
Q4001	D-7 Ⓕ
Q4002	E-22 Ⓒ
Q4003	E-22 Ⓒ
Q4005	E-7 Ⓕ
Q4007	E-6 Ⓕ
Q4009	D-6 Ⓕ
Q4011	E-8 Ⓕ
Q4012	C-19 Ⓒ
Q4013	C-19 Ⓒ
Transistor & Resistor	
QR4002	E-21 Ⓒ
QR4004	E-6 Ⓕ
QR4008	E-7 Ⓕ
Integrated Circuit	
IC4001	E-21 Ⓒ
IC4002	E-7 Ⓕ
IC4003	F-21 Ⓒ

Test Point	
TP4001	D-6 Ⓕ
TP4001	D-22 Ⓒ
TP4002	E-8 Ⓕ
TP4002	E-20 Ⓒ
TP4003	E-7 Ⓕ
TP4003	E-21 Ⓒ
Adjustment	
C4002	E-21 Ⓒ
VR4001	D-6 Ⓕ
Connector	
P4001	F-1 Ⓕ
P4001	F-27 Ⓒ
P4002	E-8 Ⓕ
P4002	D-20 Ⓒ
P4003	E-7 Ⓕ
P4003	E-21 Ⓒ
P4004	C-11 Ⓕ
P4004	C-17 Ⓒ
P4005	F-6 Ⓕ
P4005	F-22 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

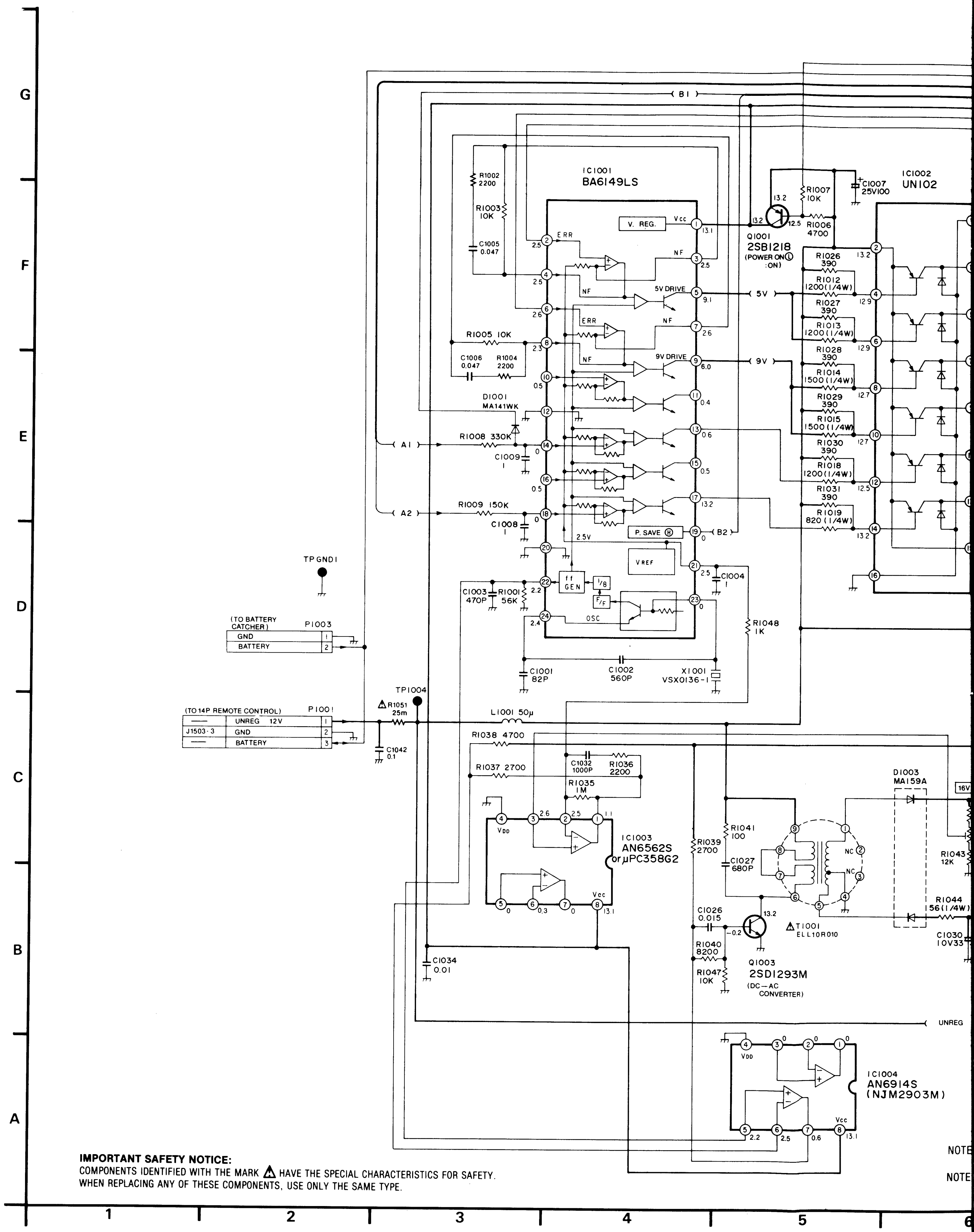
LUMINANCE, CHROMINANCE & HEAD AMP Section

Transistor	
Q3001	E-5 Ⓕ
Q3006	D-2 Ⓕ
Q3007	D-2 Ⓕ
Q3008	D-5 Ⓕ
Q3010	D-5 Ⓕ
Q3018	E-5 Ⓕ
Q3019	E-5 Ⓕ
Q3021	E-5 Ⓕ
Q3024	E-23 Ⓒ
Q3025	E-4 Ⓕ
Q3026	C-23 Ⓒ
Q3027	B-2 Ⓕ
Q3030	C-2 Ⓕ
Q3031	B-1 Ⓕ
Q3032	B-2 Ⓕ
Q3035	D-4 Ⓕ
Q3036	B-5 Ⓕ
Q3037	B-5 Ⓕ
Q3038	B-23 Ⓒ
Q3040	A-4 Ⓕ
Q3042	D-2 Ⓕ
Q3043	D-2 Ⓕ
Q3044	B-3 Ⓕ
Q3045	A-23 Ⓒ
Q3046	B-24 Ⓒ
Q5001	A-21 Ⓒ
Q5002	A-7 Ⓕ
Q5003	A-21 Ⓒ
Q5007	A-22 Ⓒ
Q5008	A-6 Ⓕ
Q5009	A-22 Ⓒ
Q5013	C-6 Ⓕ
Q5014	C-5 Ⓕ
Q5015	C-7 Ⓕ
Q5017	D-5 Ⓕ
Q5018	D-6 Ⓕ
Q8001	D-3 Ⓕ
Q8002	D-3 Ⓕ
Q8003	E-24 Ⓒ
Q8004	D-2 Ⓕ
Q8005	E-24 Ⓒ
Q8006	F-2 Ⓕ
Q8007	F-3 Ⓕ
Q8008	F-23 Ⓒ
Q8009	E-5 Ⓕ
Q8010	E-5 Ⓕ
Q8011	E-5 Ⓕ
Q8012	F-2 Ⓕ
Q8013	E-2 Ⓕ
Q8014	F-23 Ⓒ
Transistor & Resistor	
QR3001	E-5 Ⓕ
QR3002	C-24 Ⓒ
QR3006	D-26 Ⓒ
QR3007	C-2 Ⓕ
QR3009	C-2 Ⓕ
QR3011	A-2 Ⓕ
QR3014	C-25 Ⓒ
QR3015	B-23 Ⓒ
QR3016	A-23 Ⓒ
QR3018	B-26 Ⓒ
QR3019	C-24 Ⓒ
QR3020	C-4 Ⓕ
QR3021	C-3 Ⓕ
QR3022	A-24 Ⓒ
QR3027	E-5 Ⓕ
QR3028	A-25 Ⓒ
QR3029	B-26 Ⓒ
QR3030	A-2 Ⓕ
QR3032	B-4 Ⓕ
QR3034	C-23 Ⓒ
QR3035	D-4 Ⓕ
QR3037	E-6 Ⓕ
QR5001	B-21 Ⓒ
QR5002	A-21 Ⓒ
QR5003	B-22 Ⓒ
QR5004	A-22 Ⓒ
QR5005	C-6 Ⓕ
QR5007	C-5 Ⓕ
QR5008	D-6 Ⓕ

QR5010	C-7 Ⓕ
QR8001	E-5 Ⓕ
QR8003	E-4 Ⓕ
QR8004	E-4 Ⓕ
QR8005	D-25 Ⓒ
QR8006	E-5 Ⓕ
QR8007	D-3 Ⓕ
Integrated Circuit	
IC3001	B-3 Ⓕ
IC3002	C-25 Ⓒ
IC3201	G-26 Ⓒ
IC5001	B-6 Ⓕ
IC8001	E-3 Ⓕ
IC8002	E-25 Ⓒ
Test Point	
TP3001	C-6 Ⓕ
TP3001	C-22 Ⓒ
TP3002	D-5 Ⓕ
TP3002	D-23 Ⓒ
TP3003	A-6 Ⓕ
TP3003	A-22 Ⓒ
TP3004	A-6 Ⓕ
TP3004	A-22 Ⓒ
TP3005	B-4 Ⓕ
TP3005	B-24 Ⓒ
TP3007	B-5 Ⓕ
TP3007	B-23 Ⓒ
TP3008	C-3 Ⓕ
TP3008	C-25 Ⓒ
TP3010	E-4 Ⓕ
TP3010	E-24 Ⓒ
TP8001	F-4 Ⓕ
TP8001	F-24 Ⓒ
TP8002	E-2 Ⓕ
TP8002	E-26 Ⓒ
TP8003	D-2 Ⓕ
TP8003	D-25 Ⓒ
TP GND 1	A-1 Ⓕ
TP GND 1	A-27 Ⓒ
TP GND 3	D-3 Ⓕ
TP GND 3	D-25 Ⓒ
Adjustment	
VR3001	C-3 Ⓕ
VR3002	A-5 Ⓕ
VR3003	A-3 Ⓕ
VR3004	B-4 Ⓕ
VR3005	A-4 Ⓕ
VR3006	B-4 Ⓕ
VR3007	D-3 Ⓕ
VR3008	B-4 Ⓕ
VR3009	A-4 Ⓕ
VR3010	D-3 Ⓕ
VR3012	A-2 Ⓕ
VR5001	C-6 Ⓕ
VR8001	D-4 Ⓕ
VR8002	E-2 Ⓕ
Connector	
P1502	G-22
P3001	D-5 Ⓕ
P3001	D-23 Ⓒ
P3002	E-5 Ⓕ
P3002	E-23 Ⓒ
P3003	C-1 Ⓕ
P3003	C-27 Ⓒ
P3004	D-1 Ⓕ
P3004	D-27 Ⓒ
P3005	B-1 Ⓕ
P3005	B-27 Ⓒ
P3006	C-4 Ⓕ
P3006	C-24 Ⓒ
P3201	G-24 Ⓕ
P3201	G-26 Ⓒ
P5001	B-6 Ⓕ
P5001	B-22 Ⓒ
P8001	F-4 Ⓕ
P8001	F-23 Ⓒ
P8002	D-5 Ⓕ
P8002	D-23 Ⓒ

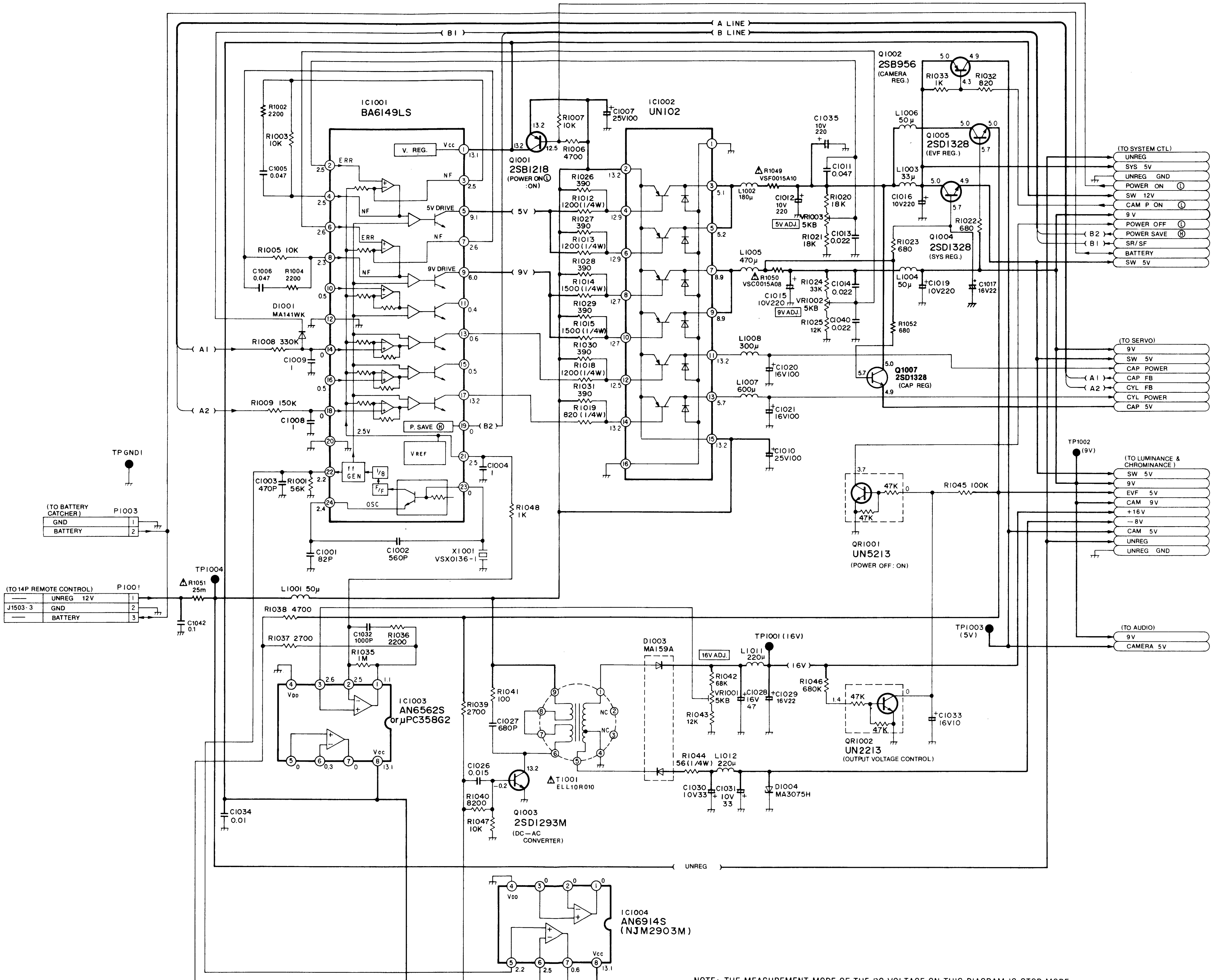
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-15. POWER SUPPLY SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
6
B1
5V
9V
A1
A2
B2
UNREG
IC1001
BA6149LS
V. REG.
Vcc
ERR
NF
5V DRIVE
9V DRIVE
P. SAVE Ⓗ
VREF
ff GEN
1/8
F/F
OSC
2.5V
R1002 2200
R1003 10K
C1005 0.047
R1005 10K
C1006 0.047
R1004 2200
D1001 MA141WK
R1008 330K
C1009 1
R1009 150K
C1008 1
C1003 470P
R1001 56K
C1004 1
R1048 1K
C1001 82P
C1002 560P
X1001 VSX0136-1
Q1001
2SB1218
(POWER ON Ⓛ :ON)
R1007 10K
R1006 4700
C1007 25V100
IC1002
UN102
R1026 390
R1012 1200(1/4W)
R1027 390
R1013 1200(1/4W)
R1028 390
R1014 1500(1/4W)
R1029 390
R1015 1500(1/4W)
R1030 390
R1018 1200(1/4W)
R1031 390
R1019 820(1/4W)
TP GND1
(TO BATTERY CATCHER)
P1003
GND
BATTERY
(TO 14P REMOTE CONTROL)
P1001
UNREG 12V
J1503-3
TP1004
R1051 25m
C1042 0.1
L1001 50μ
R1038 4700
R1037 2700
C1032 1000P
R1036 2200
R1035 1M
IC1003
AN6562S
or μPC358G2
VDD
R1041 100
R1039 2700
C1027 680P
C1026 0.015
R1040 8200
R1047 10K
Q1003
2SD1293M
(DC—AC CONVERTER)
T1001
ELL10R010
NC
D1003
MA159A
16V
R1043 12K
R1044 56(1/4W)
C1030 10V33
C1034 0.01
IC1004
AN6914S
(NJM2903M)
NOTE
NOTE

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

OWER SUPPLY SCHEMATIC DIAGRAM

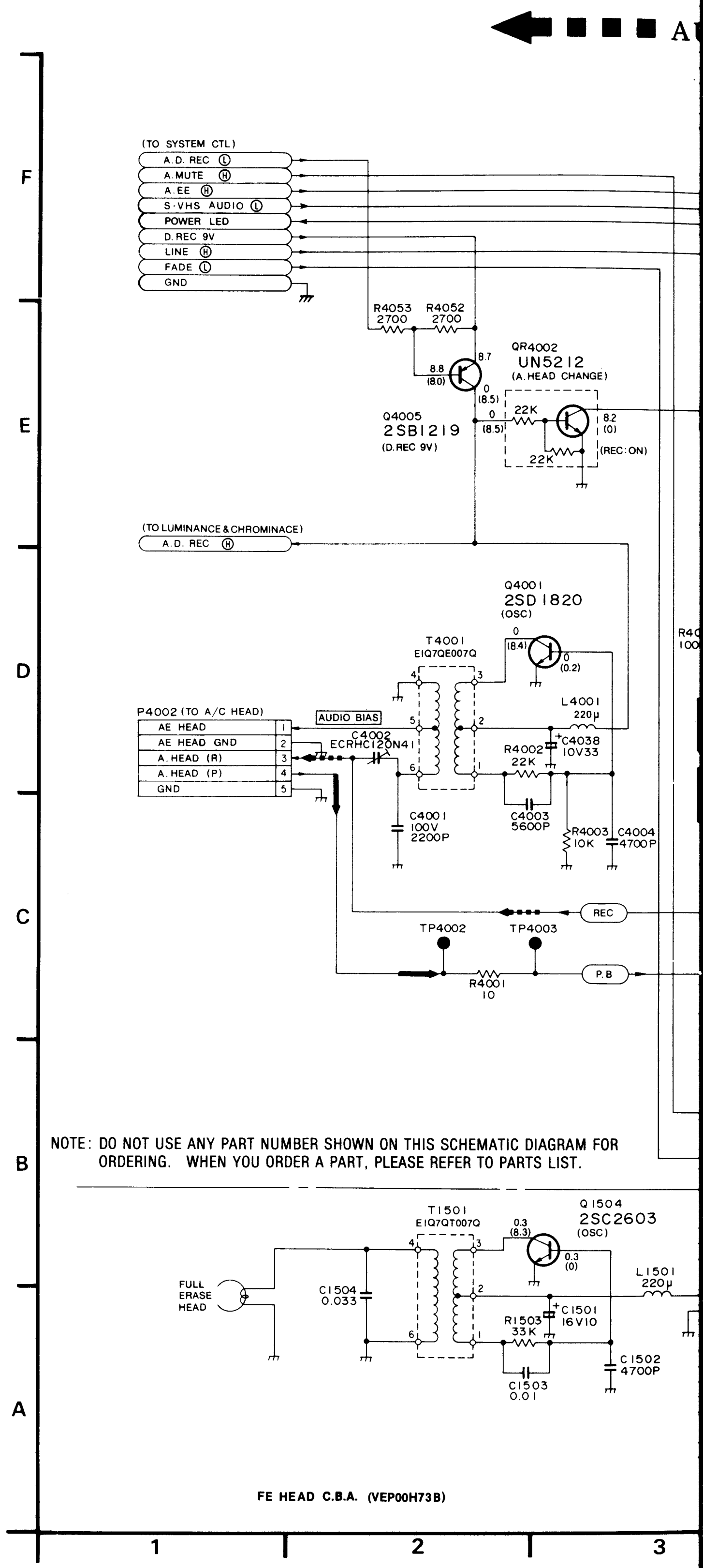

A LINE
B LINE
B1
IC1001 BA6149LS
IC1002 UN102
Q1001 2SB1218 (POWER ON Ⓛ :ON)
Q1002 2SB956 (CAMERA REG.)
Q1005 2SD1328 (EVF REG.)
Q1004 2SD1328 (SYS REG.)
Q1007 2SD1328 (CAP REG)
QR1001 UN5213 (POWER OFF: ON)
QR1002 UN2213 (OUTPUT VOLTAGE CONTROL)
Q1003 2SD1293M (DC–AC CONVERTER)
IC1003 AN6562S or μPC358G2
IC1004 AN6914S (NJM2903M)
T1001 ELL10R010
D1001 MA141WK
D1003 MA159A
D1004 MA3075H
X1001 VSX0136-1
V. REG.
5V DRIVE
9V DRIVE
P. SAVE Ⓗ
VREF
f/f GEN
OSC
5V ADJ
9V ADJ
16V ADJ.
TP GND1
TP1001 (16V)
TP1002 (9V)
TP1003 (5V)
TP1004
(TO BATTERY CATCHER) P1003
GND
BATTERY
(TO 14P REMOTE CONTROL) P1001
J1503-3
UNREG 12V
GND
BATTERY
(TO SYSTEM CTL)
UNREG
SYS 5V
UNREG GND
POWER ON Ⓛ
SW 12V
CAM P ON Ⓛ
9V
POWER OFF Ⓛ
POWER SAVE Ⓗ
SR/SF
BATTERY
SW 5V
(TO SERVO)
9V
SW 5V
CAP POWER
CAP FB
CYL FB
CYL POWER
CAP 5V
(TO LUMINANCE & CHROMINANCE)
SW 5V
9V
EVF 5V
CAM 9V
+16V
−8V
CAM 5V
UNREG
UNREG GND
(TO AUDIO)
9V
CAMERA 5V
UNREG
A1
A2
B2

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

PORTANT SAFETY NOTICE:
MPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
EN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-16. AUDIO SCHEMATIC DIAGRA

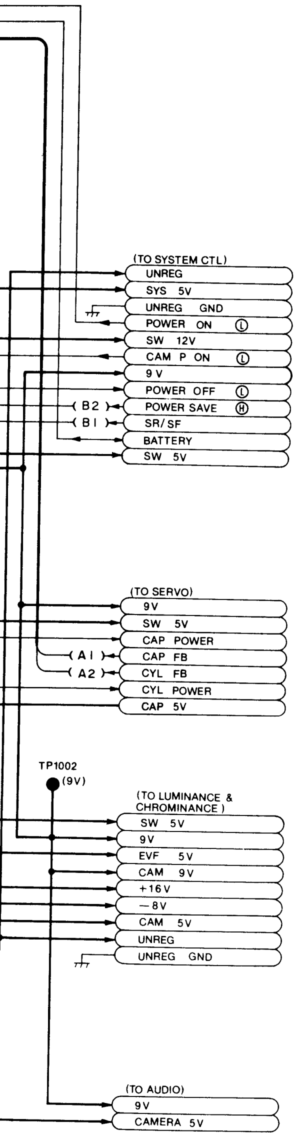

(TO SYSTEM CTL)
A.D. REC Ⓛ
A.MUTE Ⓗ
A.EE Ⓗ
S-VHS AUDIO Ⓛ
POWER LED
D.REC 9V
LINE Ⓗ
FADE Ⓛ
GND
QR4002 UN5212 (A. HEAD CHANGE)
Q4005 2SB1219 (D.REC 9V)
(TO LUMINANCE & CHROMINACE)
A.D. REC Ⓗ
Q4001 2SD1820 (OSC)
T4001 EIQ7QE007Q
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A.HEAD (R)
A.HEAD (P)
GND
AUDIO BIAS
REC
P.B
TP4002
TP4003
T1501 EIQ7QT007Q
Q1504 2SC2603 (OSC)
FULL ERASE HEAD
FE HEAD C.B.A. (VEP00H73B)
F
E
D
C
B
A
1
2
3

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

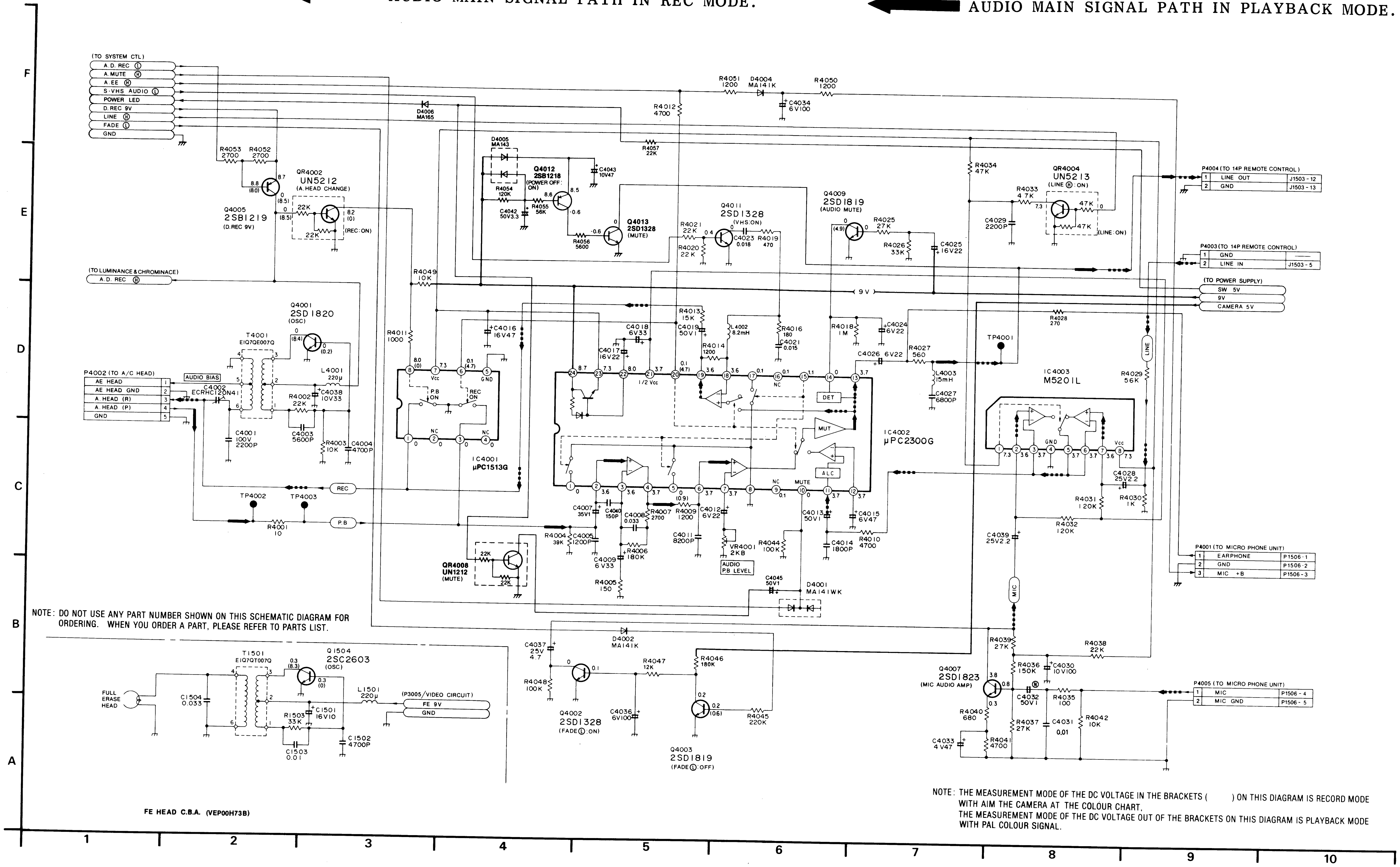
3-16. AUDIO SCHEMATIC DIAGRAM

◀■■■ AUDIO MAIN SIGNAL PATH IN REC MODE.

◀ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE.



(TO SYSTEM CTL)
UNREG
SYS 5V
UNREG GND
POWER ON Ⓛ
SW 12V
CAM P ON Ⓛ
9V
POWER OFF Ⓛ
POWER SAVE Ⓗ
SR/SF
BATTERY
SW 5V
B2
B1
(TO SERVO)
9V
SW 5V
CAP POWER
CAP FB
CYL FB
CYL POWER
CAP 5V
A1
A2
TP1002
(9V)
(TO LUMINANCE & CHROMINANCE)
SW 5V
9V
EVF 5V
CAM 9V
+16V
−8V
CAM 5V
UNREG
UNREG GND
(TO AUDIO)
9V
CAMERA 5V



F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
(TO SYSTEM CTL)
A.D. REC Ⓛ
A.MUTE Ⓗ
A.EE Ⓗ
S-VHS AUDIO Ⓛ
POWER LED
D.REC 9V
LINE Ⓗ
FADE Ⓛ
GND
D4006 MA165
R4053 2700
R4052 2700
QR4002 UN5212 (A.HEAD CHANGE)
Q4005 2SB1219 (D.REC 9V)
22K
22K
(REC:ON)
D4005 MA143
Q4012 2SB1218 (POWER OFF: ON)
R4054 120K
R4055 56K
C4042 50V3.3
C4043 10V47
R4056 5600
Q4013 2SD1328 (MUTE)
R4012 4700
R4051 1200
D4004 MA141K
R4050 1200
C4034 6V100
R4057 22K
Q4011 2SD1328 (VHS:ON)
R4021 22K
R4020 22K
C4023 0.018
R4019 470
Q4009 2SD1819 (AUDIO MUTE)
R4025 27K
R4026 33K
C4025 16V22
R4034 47K
QR4004 UN5213 (LINE Ⓗ:ON)
R4033 4.7K
C4029 2200P
47K
47K
(LINE:ON)
P4004 (TO 14P REMOTE CONTROL)
LINE OUT
GND
J1503-12
J1503-13
P4003 (TO 14P REMOTE CONTROL)
GND
LINE IN
J1503-5
(TO LUMINANCE & CHROMINACE)
A.D. REC Ⓗ
R4049 10K
9V
(TO POWER SUPPLY)
SW 5V
9V
CAMERA 5V
Q4001 2SD1820 (OSC)
T4001 EI070E007Q
L4001 220μ
R4002 22K
C4038 10V33
C4003 5600P
R4003 10K
C4004 4700P
C4001 100V 2200P
C4002 ECRHC120N41
AUDIO BIAS
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A. HEAD (R)
A. HEAD (P)
GND
R4011 1000
C4016 16V47
IC4001 μPC1513G
P.B ON
REC ON
Vcc
GND
NC
REC
P.B
TP4002
TP4003
R4001 10
QR4008 UN1212 (MUTE)
22K
22K
R4013 15K
C4019 50V1
C4018 6V33
C4017 16V22
L4002 8.2mH
R4016 180
C4021 0.015
R4014 1200
R4018 1M
C4024 6V22
C4026 6V22
R4027 560
R4028 270
L4003 15mH
C4027 6800P
1/2 Vcc
DET
MUTE
ALC
NC
IC4002 μPC2300G
C4007 35V1
C4040 150P
C4008 0.033
R4007 2700
R4009 1200
C4012 6V22
C4011 8200P
VR4001 2KB
AUDIO P.B LEVEL
R4044 100K
C4013 50V1
C4015 6V47
C4014 1800P
R4010 4700
R4004 39K
C4005 1200P
C4009 6V33
R4006 180K
R4005 150
C4045 50V1
D4001 MA141WK
TP4001
IC4003 M5201L
LINE
R4029 56K
C4028 25V2.2
R4031 120K
R4030 1K
R4032 120K
C4039 25V2.2
MIC
P4001 (TO MICRO PHONE UNIT)
EARPHONE
GND
MIC +B
P1506-1
P1506-2
P1506-3
C4037 25V 4.7
D4002 MA141K
R4047 12K
R4046 180K
R4048 100K
Q4002 2SD1328 (FADE Ⓛ:ON)
C4036 6V100
Q4003 2SD1819 (FADE Ⓛ:OFF)
R4045 220K
R4039 27K
R4038 22K
Q4007 2SD1823 (MIC AUDIO AMP)
R4036 150K
C4030 10V100
C4032 50V1
R4035 100
R4040 680
R4037 27K
C4031 0.01
R4042 10K
C4033 4V47
R4041 4700
P4005 (TO MICRO PHONE UNIT)
MIC
MIC GND
P1506-4
P1506-5
T1501 EI070T007Q
Q1504 2SC2603 (OSC)
FULL ERASE HEAD
C1504 0.033
R1503 33K
C1501 16V10
L1501 220μ
C1502 4700P
C1503 0.01
(P3005/VIDEO CIRCUIT)
FE 9V
GND
FE HEAD C.B.A. (VEP00H73B)

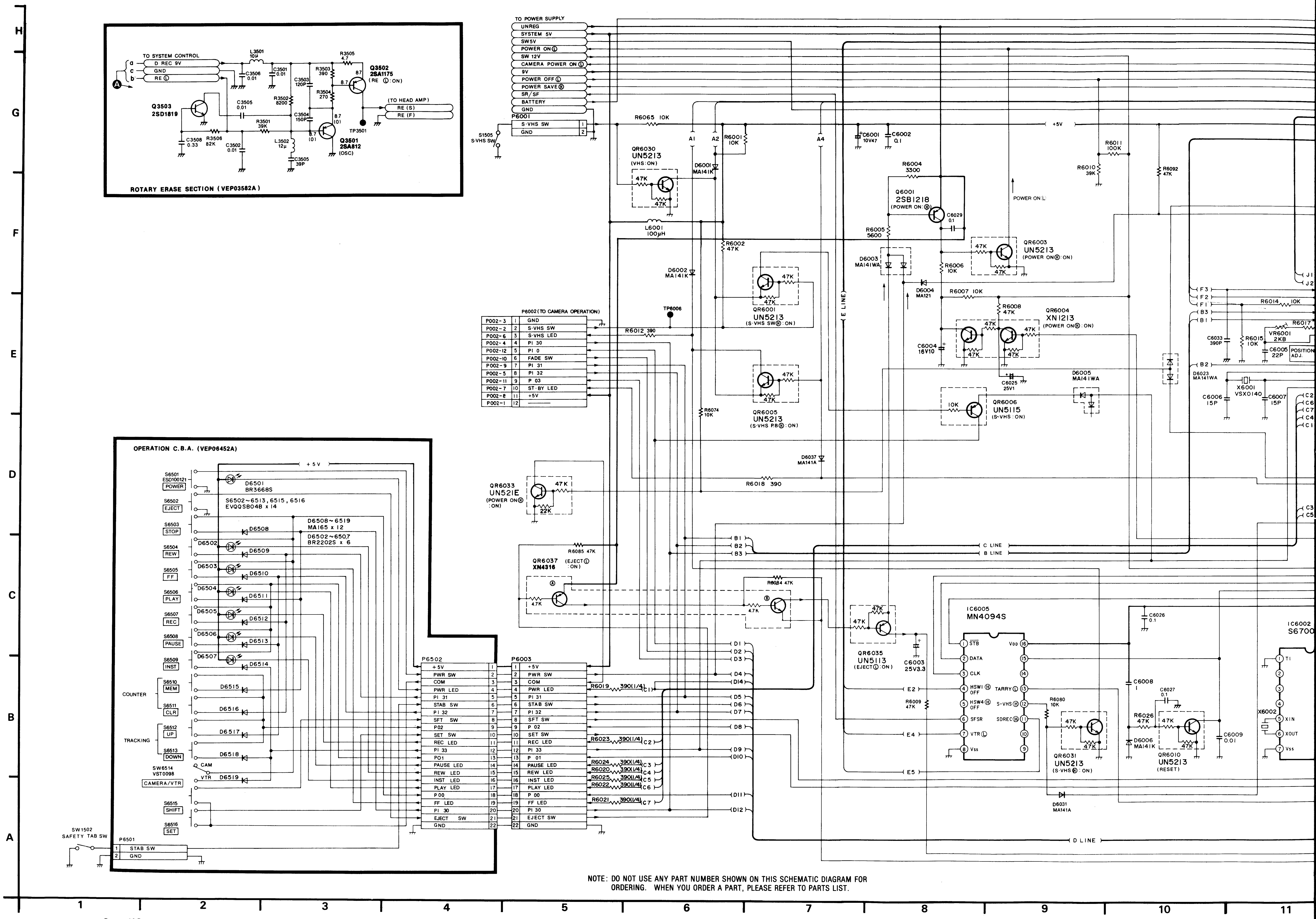
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

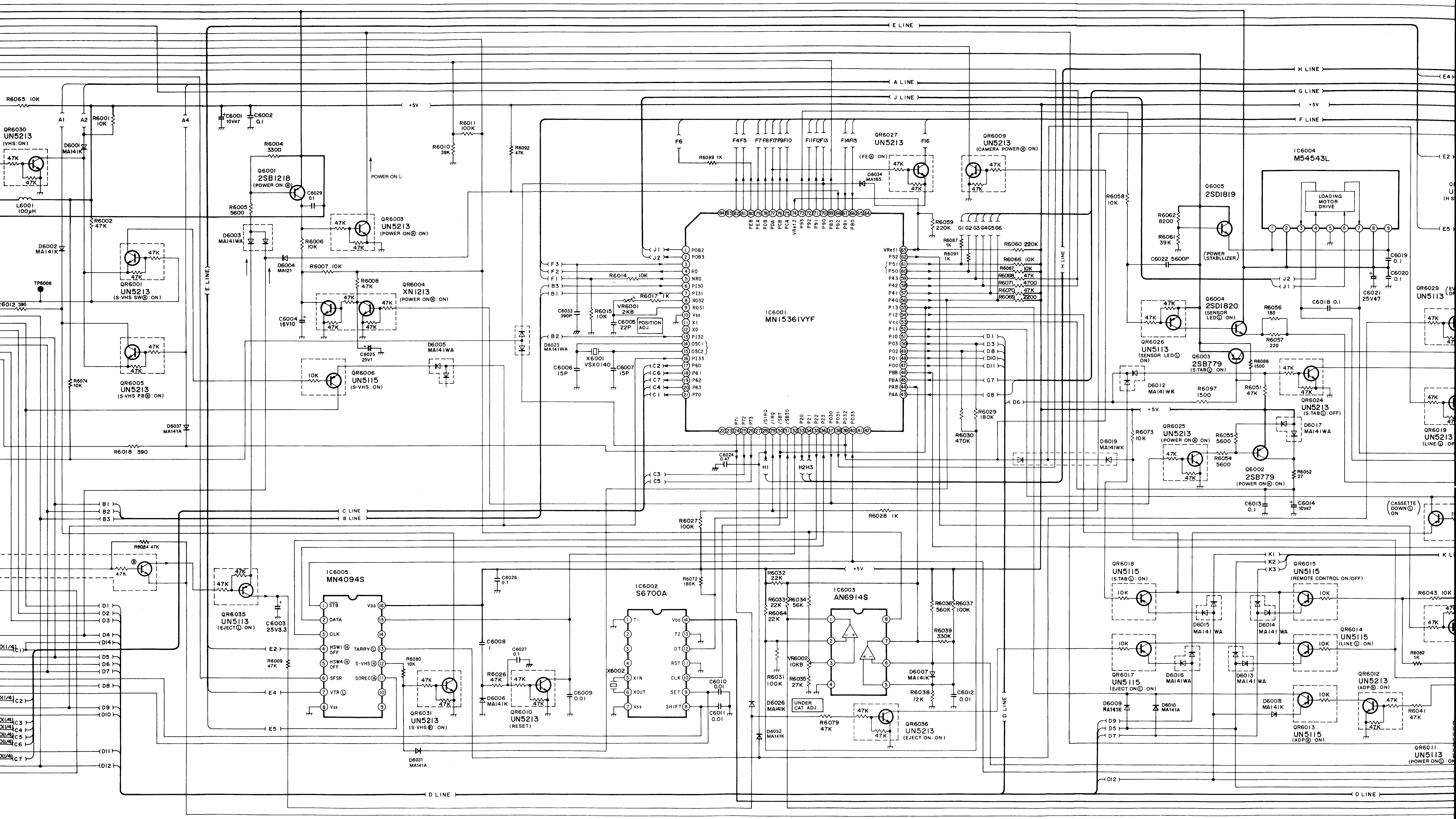
ODE.

Next Page:
SYSTEM CONTROL Section

3-17. SYSTEM CONTROL & OPERATION SCHEMATIC DIAGRAM

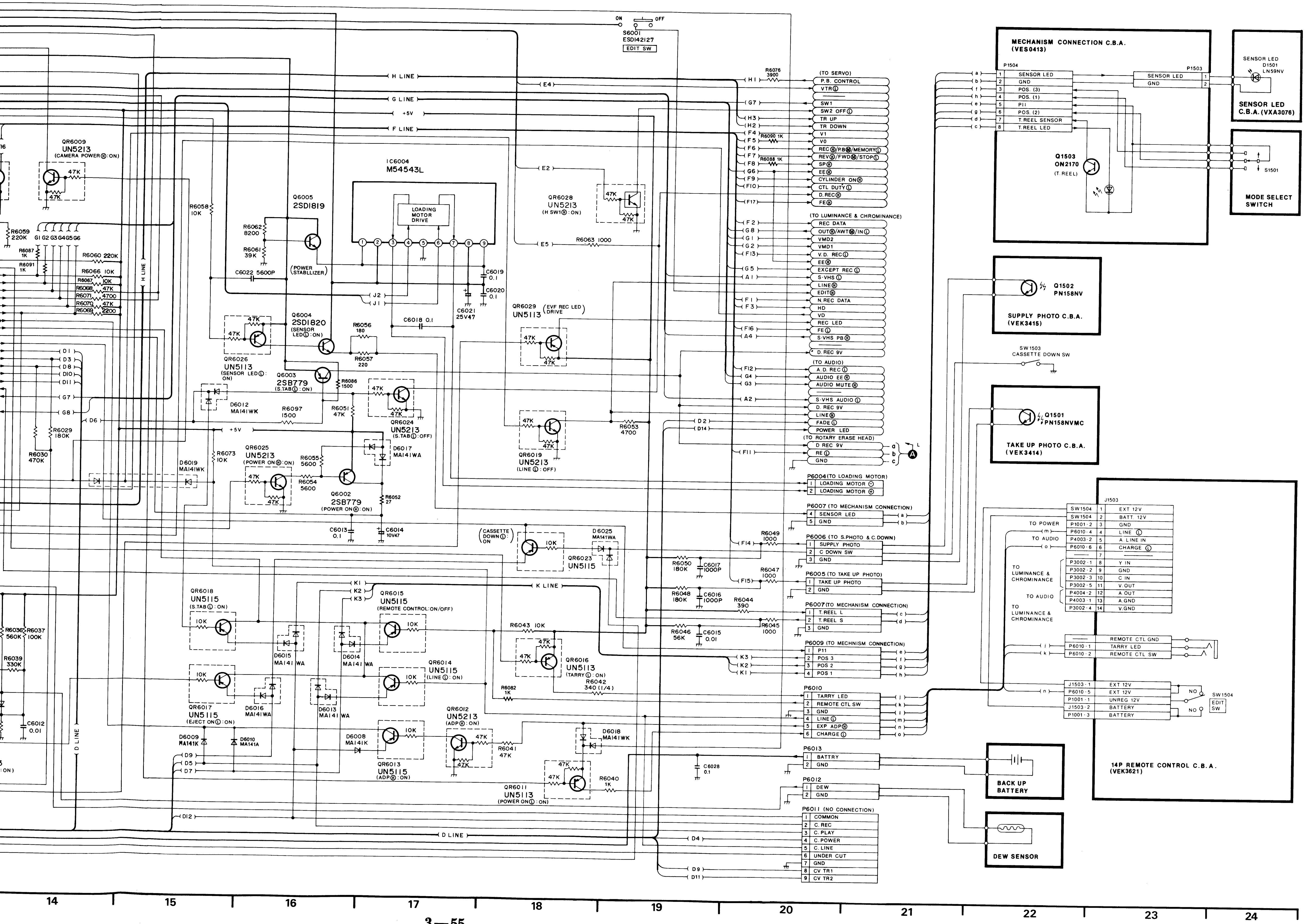

ROTARY ERASE SECTION (VEP03582A)
TO SYSTEM CONTROL
D REC 9V
GND
RE Ⓛ
(TO HEAD AMP)
RE (S)
RE (F)
Q3501 2SA812 (OSC)
Q3502 2SA1175 (RE Ⓛ:ON)
Q3503 2SD1819
TP3501
L3501 10μ
L3502 12μ
R3501 39K
R3502 8200
R3503 390
R3504 270
R3505 4.7
R3506 82K
C3501 0.01
C3502 0.01
C3503 120P
C3504 150P
C3505 39P
C3506 0.01
C3508 0.33
TO POWER SUPPLY
UNREG
SYSTEM 5V
SW5V
POWER ON Ⓛ
SW 12V
CAMERA POWER ON Ⓛ
9V
POWER OFF Ⓛ
POWER SAVE Ⓗ
SR/SF
BATTERY
GND
P6001
S-VHS SW
S1505 S-VHS SW
R6065 10K
+5V
QR6030 UN5213 (VHS:ON)
L6001 100μH
D6001 MA141K
D6002 MA141K
R6001 10K
R6002 47K
C6001 10V47
C6002 0.1
R6004 3300
Q6001 2SB1218 (POWER ON Ⓗ)
C6029 0.1
R6005 5600
D6003 MA141WA
R6006 10K
D6004 MA121
R6007 10K
R6008 47K
QR6003 UN5213 (POWER ON Ⓗ:ON)
QR6001 UN5213 (S-VHS SW Ⓗ:ON)
QR6004 XN1213 (POWER ON Ⓗ:ON)
C6004 16V10
C6025 25V1
QR6005 UN5213 (S-VHS PB Ⓗ:ON)
QR6006 UN5115 (S-VHS:ON)
D6005 MA141WA
R6010 39K
R6011 100K
R6092 47K
POWER ON Ⓛ
E LINE
R6014 10K
R6015 10K
R6017
VR6001 2KB POSITION ADJ.
C6033 390P
C6005 22P
D6023 MA141WA
X6001 VSX0140
C6006 15P
C6007 15P
P6002 (TO CAMERA OPERATION)
GND
S-VHS SW
S-VHS LED
PI 30
PI 0
FADE SW
PI 31
PI 32
P 03
ST-BY LED
+5V
TP6006
R6012 390
R6074 10K
D6037 MA141A
R6018 390
QR6033 UN521E (POWER ON Ⓗ:ON)
QR6037 XN4316 (EJECT Ⓛ:ON)
R6085 47K
R6084 47K
C LINE
B LINE
D LINE
QR6035 UN5113 (EJECT Ⓛ:ON)
C6003 25V3.3
IC6005 MN4094S
STB
DATA
CLK
HSW1 Ⓗ OFF
HSW4 Ⓗ OFF
SFSR
VTR Ⓛ
Vss
VDD
TARRY Ⓛ
S-VHS Ⓗ
SDREC Ⓗ
R6009 47K
R6080 10K
QR6031 UN5213 (S-VHS Ⓗ:ON)
D6031 MA141A
C6026 0.1
C6008 1
C6027 0.1
R6026 47K
D6006 MA141K
QR6010 UN5213 (RESET)
C6009 0.01
IC6002 S670
X6002
XIN
XOUT
Vss
OPERATION C.B.A. (VEP06452A)
S6501 ESD100121 POWER
D6501 BR3668S
S6502 EJECT
S6502~6513, 6515, 6516 EVQQS804B x 14
S6503 STOP
D6508~6519 MA165 x 12
D6502~6507 BR2202S x 6
S6504 REW
S6505 FF
S6506 PLAY
S6507 REC
S6508 PAUSE
S6509 INST
COUNTER
S6510 MEM
S6511 CLR
TRACKING
S6512 UP
S6513 DOWN
SW6514 VST0098 CAMERA/VTR
CAM
VTR
S6515 SHIFT
S6516 SET
SW1502 SAFETY TAB SW
P6501
STAB SW
GND
P6502
P6003
+5V
PWR SW
COM
PWR LED
PI 31
PI 32
STAB SW
SFT SW
P02
SET SW
REC LED
PI 33
P01
PAUSE LED
REW LED
INST LED
PLAY LED
P00
FF LED
PI 30
EJECT SW
GND
R6019 390(1/4)
R6023 390(1/4)
R6024 390(1/4)
R6020 390(1/4)
R6025 390(1/4)
R6022 390(1/4)
R6021 390(1/4)
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


E LINE
H LINE
A LINE
G LINE
J LINE
+5V
F LINE
C LINE
B LINE
D LINE
K LINE
E LINE
D LINE
H LINE
IC6001
MN15361VYF
IC6004
M54543L
LOADING MOTOR DRIVE
IC6005
MN4094S
IC6002
S6700A
IC6003
AN6914S
Q6001
2SB1218
(POWER ON:Ⓗ)
Q6005
2SD1819
(POWER STABLLIZER)
Q6004
2SD1820
(SENSOR LED①:ON)
Q6003
2SB779
(S.TAB①:ON)
Q6002
2SB779
(POWER ON Ⓗ:ON)
QR6030
UN5213
(VHS:ON)
QR6001
UN5213
(S-VHS SWⒽ:ON)
QR6005
UN5213
(S-VHS PBⒽ:ON)
QR6003
UN5213
(POWER ONⒽ:ON)
QR6004
XN1213
(POWER ONⒽ:ON)
QR6006
UN5115
(S-VHS:ON)
QR6027
UN5213
(FEⒽ:ON)
QR6009
UN5213
(CAMERA POWERⒽ:ON)
QR6026
UN5113
(SENSOR LED①:ON)
QR6024
UN5213
(S.TAB①:OFF)
QR6025
UN5213
(POWER ONⒽ:ON)
QR6035
UN5113
(EJECT①:ON)
QR6031
UN5213
(S-VHSⒽ:ON)
QR6010
UN5213
(RESET)
QR6036
UN5213
(EJECT ON:ON)
QR6018
UN5115
(S.TAB①:ON)
QR6017
UN5115
(EJECT ON①:ON)
QR6015
UN5115
(REMOTE CONTROL:ON/OFF)
QR6014
UN5115
(LINE①:ON)
QR6013
UN5115
(ADPⒽ:ON)
QR6012
UN5213
(ADPⒽ:ON)
QR6011
UN5113
(POWER ON①:ON)
QR6029
UN5113
QR6019
UN5213
X6001
VSX0140
X6002
VR6001
2K8
POSITION ADJ.
VR6002
10KB
UNDER CAT ADJ.
L6001
100μH
TP6006
POWER ON①
(CASSETTE DOWN①:ON)
R6065 10K
R6001 10K
R6002 47K
R6004 3300
R6005 5600
R6006 10K
R6007 10K
R6008 47K
R6010 39K
R6011 100K
R6092 47K
R6089 1K
R6014 10K
R6015 10K
R6017 1K
R6018 390
R6012 390
R6074 10K
R6084 47K
R6009 47K
R6080 10K
R6026 47K
R6027 100K
R6028 1K
R6029 180K
R6030 470K
R6072 180K
R6032 22K
R6033 22K
R6034 56K
R6064 22K
R6031 100K
R6035 27K
R6036 560K
R6037 100K
R6039 330K
R6038 12K
R6079 47K
R6058 10K
R6059 220K
R6060 220K
R6061 39K
R6062 8200
R6066 10K
R6067 10K
R6068 47K
R6071 4700
R6070 47K
R6069 2200
R6087 1K
R6091 1K
R6056 180
R6057 220
R6086 1500
R6097 1500
R6051 47K
R6073 10K
R6055 5600
R6054 5600
R6052 27
R6043 10K
R6082 1K
R6041 47K
C6001 10V47
C6002 0.1
C6029 0.1
C6004 16V10
C6025 25V1
C6033 390P
C6005 22P
C6006 15P
C6007 15P
C6024 0.47
C6003 25V3.3
C6008 1
C6026 0.1
C6027 0.1
C6009 0.01
C6010 0.01
C6011 0.01
C6012 0.01
C6022 5600P
C6019 0.1
C6020 0.1
C6021 25V47
C6018 0.1
C6013 0.1
C6014 10V47
D6001 MA141K
D6002 MA141K
D6003 MA141WA
D6004 MA121
D6005 MA141WA
D6023 MA141WA
D6034 MA165
D6037 MA141A
D6006 MA141K
D6031 MA141A
D6026 MA141K
D6032 MA141K
D6007 MA141K
D6019 MA141WK
D6012 MA141WK
D6017 MA141WA
D6015 MA141WA
D6014 MA141WA
D6016 MA141WA
D6013 MA141WA
D6009 MA141K
D6010 MA141A
D6008 MA141K
STB
DATA
CLK
HSW1 Ⓗ OFF
HSW4 Ⓗ OFF
SFSR
VTR①
Vss
VDD
TARRY
S-VHS
SDREC
T1
T2
DT
RST
XIN
XOUT
SET
SHIFT
P0B2
P0B3
RD
NRD
PI30
PI31
ROS2
ROS1
X1
X0
PI32
OSC1
OSC2
PI33
P60
P61
P62
P63
P70
VRef1
P52
P51
P50
P43
P42
P41
P40
P13
P12
Vcc
P11
P10
P03
P02
P01
P00
PBB
PBA
PAB
PAA
PEB
PEA
PDB
PDA
PCB
PCA
VRef2
P93
P92
P91
P90
P83
P82
P81
P80
P71
P72
P73
/SIRQ
/IRQ
/SBT
/SB10
P20
P21
P22
P23
P030
P031
P032
P033
F4 F5
F7 F8 F7 F9 F10
F11 F12 F13
F14 F15
F16
F6
G1 G2 G3 G4 G5 G6
J1
J2
H1
H2 H3
A1
A2
A4
B1
B2
B3
C1
C2
C3
C4
C5
C6
C7
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D14
E2
E4
E5
F1
F2
F3
G7
G8
K1
K2
K3
E2
E4
E5

OT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
RING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

6	7	8	9	10	11	12	13	14	15	16	17	18


S6001
ESD142127
EDIT SW
ON
OFF
H LINE
G LINE
+5V
F LINE
E4
E2
E5
K LINE
D LINE
QR6009
UN5213
(CAMERA POWER Ⓗ:ON)
IC6004
M54543L
LOADING MOTOR DRIVE
Q6005
2SD1819
(POWER STABLIZER)
Q6004
2SD1820
(SENSOR LED Ⓛ:ON)
Q6003
2SB779
(S.TAB Ⓛ:ON)
Q6002
2SB779
(POWER ON Ⓗ:ON)
QR6026
UN5113
(SENSOR LED Ⓛ:ON)
QR6025
UN5213
(POWER ON Ⓗ:ON)
QR6024
UN5213
(S.TAB Ⓛ:OFF)
QR6028
UN5213
(H SW1 Ⓗ:ON)
QR6029
UN5113
(EVF REC LED DRIVE)
QR6019
UN5213
(LINE Ⓛ:OFF)
QR6023
UN5115
(CASSETTE DOWN Ⓛ:ON)
QR6018
UN5115
(S.TAB Ⓛ:ON)
QR6015
UN5115
(REMOTE CONTROL:ON/OFF)
QR6016
UN5113
(TARRY Ⓛ:ON)
QR6017
UN5115
(EJECT ON Ⓛ:ON)
QR6014
UN5115
(LINE Ⓛ:ON)
QR6012
UN5213
(ADP Ⓗ:ON)
QR6013
UN5115
(ADP Ⓗ:ON)
QR6011
UN5113
(POWER ON Ⓛ:ON)
D6012 MA141WK
D6017 MA141WA
D6019 MA141WK
D6025 MA141WA
D6015 MA141WA
D6014 MA141WA
D6016 MA141WA
D6013 MA141WA
D6018 MA141WK
D6009 MA141K
D6010 MA141A
D6008 MA141K
R6058 10K
R6059 220K
R6062 8200
R6061 39K
R6087 1K
R6091 1K
R6060 220K
R6066 10K
R6067 10K
R6068 47K
R6071 4700
R6070 47K
R6069 2200
C6022 5600P
C6019 0.1
C6020 0.1
C6021 25V47
C6018 0.1
R6056 180
R6057 220
R6086 1500
R6051 47K
R6097 1500
R6029 180K
R6030 470K
R6073 10K
R6055 5600
R6054 5600
R6052 27
C6013 0.1
C6014 10V47
R6063 1000
R6053 4700
R6076 3900
R6090 1K
R6088 1K
R6049 1000
R6050 180K
C6017 1000P
R6047 1000
R6048 180K
C6016 1000P
R6044 390
R6046 56K
C6015 0.01
R6045 1000
R6043 10K
R6042 340 (1/4)
R6082 1K
R6041 47K
R6040 1K
C6028 0.1
R6036 560K
R6037 100K
R6039 330K
C6012 0.01
G1 G2 G3 G4 G5 G6
D1 D3 D8 D10 D11 G7 G8 D6 D2 D14 D9 D5 D7 D12 D4 D9 D11
K1 K2 K3
J1 J2
H1 G7 H3 H2 F4 F5 F6 F7 F8 G6 F9 F10 F17
F2 G8 G1 G2 F13 G5 A1 F1 F3 F16 A4 F12 G4 G3 A2 F11 F14 F15
(TO SERVO)
P.B. CONTROL
VTR Ⓛ
SW1
SW2 OFF Ⓛ
TR UP
TR DOWN
V1
V0
REC Ⓗ/PB Ⓜ/MEMORY Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
SP Ⓗ
EE Ⓗ
CYLINDER ON Ⓗ
CTL DUTY Ⓛ
D.REC Ⓗ
FE Ⓗ
(TO LUMINANCE & CHROMINANCE)
REC DATA
OUT Ⓗ/AWT Ⓜ/IN Ⓛ
VMD2
VMD1
V.D. REC Ⓛ
EE Ⓗ
EXCEPT REC Ⓛ
S-VHS Ⓛ
LINE Ⓗ
EDIT Ⓗ
N.REC DATA
HD
VD
REC LED
FE Ⓛ
S-VHS PB Ⓗ
D.REC 9V
(TO AUDIO)
A.D. REC Ⓛ
AUDIO EE Ⓗ
AUDIO MUTE Ⓗ
S-VHS AUDIO Ⓛ
D.REC 9V
LINE Ⓗ
FADE Ⓛ
POWER LED
(TO ROTARY ERASE HEAD)
D REC 9V
RE Ⓛ
GND
a b c Ⓐ L
P6004 (TO LOADING MOTOR)
1 LOADING MOTOR ⊖
2 LOADING MOTOR ⊕
P6007 (TO MECHANISM CONNECTION)
4 SENSOR LED
5 GND
P6006 (TO S.PHOTO & C.DOWN)
1 SUPPLY PHOTO
2 C DOWN SW
3 GND
P6005 (TO TAKE UP PHOTO)
1 TAKE UP PHOTO
2 GND
P6007 (TO MECHANISM CONNECTION)
1 T.REEL L
2 T.REEL S
3 GND
P6009 (TO MECHNISM CONNECTION)
1 P11
2 POS 3
3 POS 2
4 POS 1
P6010
1 TARRY LED
2 REMOTE CTL SW
3 GND
4 LINE Ⓛ
5 EXP ADP Ⓗ
6 CHARGE Ⓛ
P6013
1 BATTRY
2 GND
P6012
1 DEW
2 GND
P6011 (NO CONNECTION)
1 COMMON
2 C.REC
3 C.PLAY
4 C.POWER
5 C.LINE
6 UNDER CUT
7 GND
8 CV TR1
9 CV TR2
MECHANISM CONNECTION C.B.A. (VES0413)
P1504
1 SENSOR LED
2 GND
3 POS. (3)
4 POS. (1)
5 P11
6 POS. (2)
7 T.REEL SENSOR
8 T.REEL LED
P1503
SENSOR LED 1
GND 2
Q1503
ON2170
(T.REEL)
SENSOR LED
D1501
LN59NV
SENSOR LED C.B.A. (VXA3076)
S1501
MODE SELECT SWITCH
Q1502
PN158NV
SUPPLY PHOTO C.B.A. (VEK3415)
SW1503
CASSETTE DOWN SW
Q1501
PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
J1503
SW1504 1 EXT 12V
SW1504 2 BATT 12V
P1001·2 3 GND
P6010·4 4 LINE Ⓛ
P4003·2 5 A LINE IN
P6010·6 6 CHARGE Ⓛ
7
P3002·1 8 Y IN
P3002·2 9 GND
P3002·3 10 C IN
P3002·5 11 V.OUT
P4004·2 12 A OUT
P4003·1 13 A GND
P3002·4 14 V.GND
TO POWER
TO AUDIO
TO LUMINANCE & CHROMINANCE
TO AUDIO
TO LUMINANCE & CHROMINANCE
REMOTE CTL GND
P6010·1 TARRY LED
P6010·2 REMOTE CTL SW
J1503·1 EXT 12V
P6010·5 EXT 12V
P1001·1 UNREG 12V
J1503·2 BATTERY
P1001·3 BATTERY
NO
SW1504
EDIT SW
14P REMOTE CONTROL C.B.A. (VEK3621)
BACK UP BATTERY
DEW SENSOR
14
15
16
17
18
19
20
21
22
23
24

SYSTEM CONTROL ICs VOLTAGE CHART

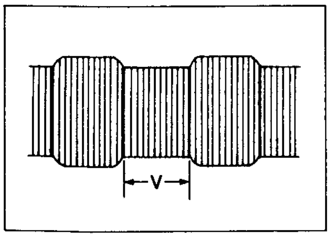
REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	1.2	0	0	4.8	4.8	4.9	4.9	0	1.1	0	4.9	2.5	2.0	4.8	4.1	4.1	4.1	3.8
PLAY	0	0	4.0	0	0	4.1	4.2	3.0	2.9	0	0.8	0	4.9	2.5	2.0	4.2	3.9	0.4	4.0	3.8
REC	0	0	0.6	0	0	4.7	4.8	4.9	4.9	0	1.0	0	4.9	2.5	2.0	4.7	0.4	0.4	3.7	3.7
F.F	0	0	4.0	0	0	4.3	4.8	3.0	2.9	0	0.6	0	4.4	2.5	2.7	4.2	3.8	3.8	0.4	3.8
REW	0	0	4.0	0	0	4.3	4.8	3.0	2.9	0	0.7	0	4.4	2.4	2.1	4.2	0	3.8	3.8	0.4
REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0.3	0	0	4.1	3.8	4.1	3.8	4.9	4.9	4.7	4.9	4.9	0	0	0.1	0	4.9	0	4.9	4.7
PLAY	0.4	0	0	3.8	3.8	3.8	3.3	4.6	4.6	4.7	4.9	4.9	0	0	0.1	0	4.9	0	0.1	4.7
REC	0.4	0	0	3.7	3.7	3.9	3.8	—	4.9	4.7	4.9	4.9	0.1	0.1	0.1	0.1	4.9	0.1	4.9	4.9
F.F	0.4	0	0	3.7	3.8	3.8	3.3	4.9	4.6	4.7	4.9	4.9	0	0	0.1	0.1	4.8	0	4.9	4.7
REW	0.4	0	0	3.8	3.8	3.8	3.3	4.0	4.6	4.7	4.9	4.9	0	0	0.1	0.1	4.8	0	4.8	4.7
REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	2.2	4.7	0	4.5	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.9	4.8	4.8	4.9	0	4.9	0
PLAY	0	0	0	4.7	0.1	4.5	4.6	4.6	4.6	4.6	4.3	4.3	4.9	4.2	4.7	0	0	0.2	0	0.1
REC	0	0	2.2	4.7	0	4.5	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.8	4.7	4.8	4.9	4.9	0	0.1
F.F	0	0	2.2	4.7	0	4.5	4.6	4.6	4.6	4.7	4.3	4.3	4.9	4.2	4.7	4.8	4.9	4.9	0	0.1
REW	0	0	2.2	4.7	0	4.5	4.5	4.6	4.6	4.7	4.3	4.3	4.9	4.2	4.7	4.8	4.9	4.9	4.9	0.1
REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	4.9	2.5	0	0	4.9	4.9	—	3.7	3.5	3.3	2.2	8.6	2.5	0	0	0	4.9	0	4.9
PLAY	0.1	4.9	2.5	0	0	4.8	4.9	—	3.7	8.7	8.7	5.6	8.6	2.5	0	4.9	0	0	2.5	2.5
REC	0.1	0	2.4	−0.1	−0.1	4.8	4.9	—	3.7	0.3	0.3	5.5	8.6	2.4	0	4.9	4.9	4.9	2.5	4.9
F.F	0.1	4.9	2.4	0	0	4.8	4.9	—	3.7	8.6	8.7	0	5.4	0	0	0	0	2.5	2.5	4.9
REW	0.1	4.9	2.4	0	0	0	4.8	—	3.7	8.6	8.6	5.6	5.4	2.4	0	0	0	2.5	4.9	4.9
REF. NO.	IC6001																			
MODE	81	82	83	84																
STOP	4.9	0	0	0																
PLAY	4.9	0	0	0																
REC	4.9	0	0	0																
F.F	4.9	4.9	0	0																
REW	4.9	4.9	0	0																
REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.5	0	0	−0.1	0.2	0	0	0	4.8	0	4.9	0	0						
PLAY	0	0.5	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						
REC	0	0.6	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						
F.F	0	0.7	0	0	−0.1	0	0	0	0	4.7	0	4.9	0	0						
REW	0	0.6	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						
REF. NO.	IC6003										IC6004									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8	9	
STOP	4.6	4.1	4.5	0	0.6	0	4.7	13.1			6.7	13.2	0.8	0	0	0	0.8	13.2	6.7	
PLAY	4.7	4.1	4.4	0	0.6	0	4.7	13.0			6.8	13.1	1.0	0	0	0	0.9	13.1	6.8	
REC	4.6	4.1	4.4	0	0.6	0	4.6	12.9			6.7	13.1	0.8	0	0	0	0.4	13.1	6.7	
F.F	4.7	4.1	4.4	0	0.6	0	4.7	12.9			6.8	13.1	1.0	0	0	0	0.9	13.1	6.8	
REW	4.7	4.1	4.4	0	0.6	0	4.7	12.9			6.8	13.1	0.8	0	0	0	0.9	13.1	6.8	
REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.7	0.1	0.1	0	0	4.9	4.9	0	0.1	0.1	0	0	4.6	4.9	4.9	4.9				
PLAY	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	4.9	0	4.9	5.0				
REC	4.9	0.1	0.1	0	0	4.9	0	0	4.8	4.8	4.9	0	0	4.9	4.9	4.9				
F.F	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	5.0	5.0	4.9	5.0				
REW	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	4.6	0	0	4.9				

SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

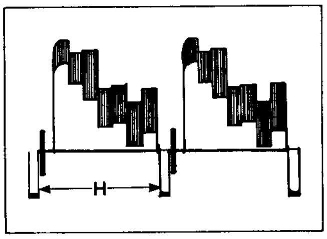
REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	13.1	8.7	13.1	5.0	4.9	4.3	8.8	8.8	8.0	−0.9	13.2	−0.6	6.9	8.8	7.3			
PLAY	13.4	8.9	13.4	5.0	4.9	4.3	8.8	8.8	8.0	−0.9	13.1	−0.5	6.8	8.8	7.3			
REC	13.0	8.6	13.0	0	0	4.8	8.7	8.7	8.0	−0.9	13.1	−0.5	6.9	8.8	7.3			
F.F	13.1	8.7	13.1	4.9	4.9	4.3	8.8	8.8	8.1	3.4	13.0	3.6	6.9	8.8	7.3			
REW	13.0	8.6	13.0	5.0	4.9	4.3	8.8	8.8	8.1	3.5	13.0	4.0	6.9	8.8	7.3			
REF. NO.	QR6001			QR6003			QR6004 Ⓐ			QR6004 Ⓑ			QR6005			QR6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	3.2	3.9	4.2	0	0	8.7	0	10.9	0	0	0	4.9	3.2	4.9	0	4.9	4.9	4.0
PLAY	3.2	3.9	4.3	0	0	8.9	0	10.9	0	0	0	4.9	3.2	4.8	0.4	4.6	4.3	3.9
REC	3.1	3.9	4.2	0	0	8.6	0	10.8	0	0	0	4.8	3.1	4.9	0	4.9	4.9	4.0
F.F	3.2	3.9	4.2	0	0	8.7	0	10.8	0	0	0	4.9	3.2	4.9	0	4.6	4.3	3.9
REW	3.2	3.9	4.2	0	0	8.7	0	10.8	0	0	0	4.9	3.2	4.8	0	4.6	4.3	3.9

REF. NO.	QR6009			QR6010			QR6011			QR6012			QR6013			QR6014		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0.1	4.9	0	4.9	0	12.6	12.6	0	0	0	6.2	4.7	0	4.7	4.6	4.8	4.8
PLAY	0	5.0	0	0	4.9	0	12.5	12.5	0	0	0	6.2	4.7	4.7	0	4.8	4.8	4.2
REC	0	0.1	4.9	0	4.9	0	12.5	12.5	0	0	0	6.1	4.7	4.7	0	4.6	4.7	4.8
F.F	0	0.1	4.8	0	4.9	0	12.5	12.4	0	0	0	6.1	4.7	4.7	0	4.6	4.8	4.8
REW	0	0.1	4.9	0	4.9	0	12.5	12.4	0	0	0	6.1	4.7	4.7	0	4.5	4.7	4.8
REF. NO.	QR6015			QR6016			QR6017			QR6018			QR6019			QR6023		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.6	4.9	4.9	5.0	0	4.9	4.5	4.2	4.4	4.6	4.9	4.5	0	0	4.4	4.4	4.3	0.5
PLAY	4.6	4.2	4.9	5.0	0	4.9	4.6	4.2	4.5	4.3	4.2	0.5	0	0	4.4	4.3	4.3	0.5
REC	4.6	4.8	4.9	4.9	4.9	0.1	4.4	4.2	4.3	4.8	4.8	0.5	0	0	4.4	4.3	4.3	0.5
F.F	4.5	4.2	4.9	4.9	0	4.9	4.5	4.2	4.4	4.3	4.2	0.5	0	0	4.4	4.4	4.3	0.4
REW	4.6	4.2	4.9	5.0	0	4.9	4.6	4.2	4.5	4.3	4.2	0.5	0	0	4.4	4.3	4.3	0.5
REF. NO.	QR6024			QR6025			QR6026			QR6027			QR6028			QR6029		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0.4	0	0	4.9	8.7	−0.5	8.6	0	3.2	0	0	4.6	0	5.0	0	5.0
PLAY	0	0	0.4	0	0	4.9	8.7	−0.6	8.6	0	8.6	0	0	0.1	0	4.9	−0.1	4.9
REC	0	5.0	4.4	0	0	4.8	8.7	−0.5	8.6	0.9	0.9	0	0	0.4	0	5.0	4.9	0
F.F	0	0	0.4	0	0	4.9	8.7	3.9	6.0	0	8.6	0	0	0	0	4.9	−0.3	4.6
REW	0	0	0.4	0	0	4.9	8.7	3.7	6.0	0	8.6	0	0	0	0	4.9	−0.3	4.6
REF. NO.	QR6030			QR6031			QR6033			QR6035			QR6036			QR6037 Ⓐ		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	3.2	0	4.7	4.2	4.7	0	0	4.1	12.8	0	12.7	0	4.0	0	13.2	−1.3	13.1
PLAY	0	3.2	0	0	4.8	0	0	1.2	0.7	12.8	0	12.7	0	3.9	0	13.1	−1.1	13.1
REC	0	3.2	0	0	4.9	0	0	1.2	0.9	12.7	0	12.6	0	3.9	0	13.1	−1.2	13.0
F.F	0	3.2	0	0	4.9	0	0	0	4.1	12.7	0	12.6	0	3.9	0	13.1	−1.2	13.0
REW	0	3.1	0	0	4.9	0	0	0	4.1	12.7	0	12.6	0	4.0	0	13.1	−1.3	13.0
REF. NO.	QR6037 Ⓑ																	
MODE	E	C	B															
STOP	−0.7	12.7	−0.7															
PLAY	−1.3	12.7	−1.3															
REC	−1.2	12.6	−1.3															
F.F	−1.2	12.6	−1.1															
REW	−1.4	12.6	−1.3															

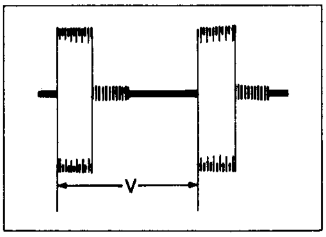
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 3000 Series)



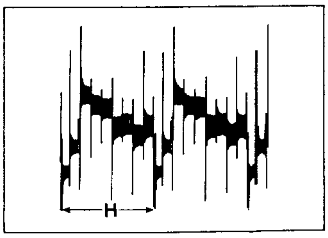
TP3001 PLAY
0.1V/5msec. div. 0.17Vp-p



TP3002 REC/PLAY
0.5V/20µsec. div. 2.0Vp-p

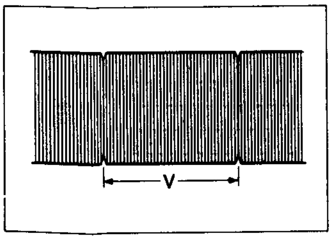


TP3003 REC
50mV/20msec. div. 0.2Vp-p

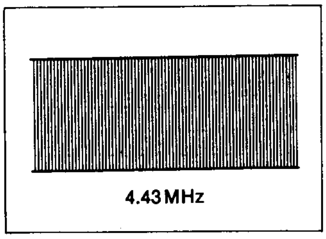


TP3005 REC
0.1V/20µsec. div. 0.65Vp-p

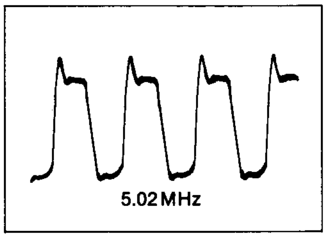
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 8000 Series)



TP3007 REC
0.1V/5msec. div. 0.6Vp-p

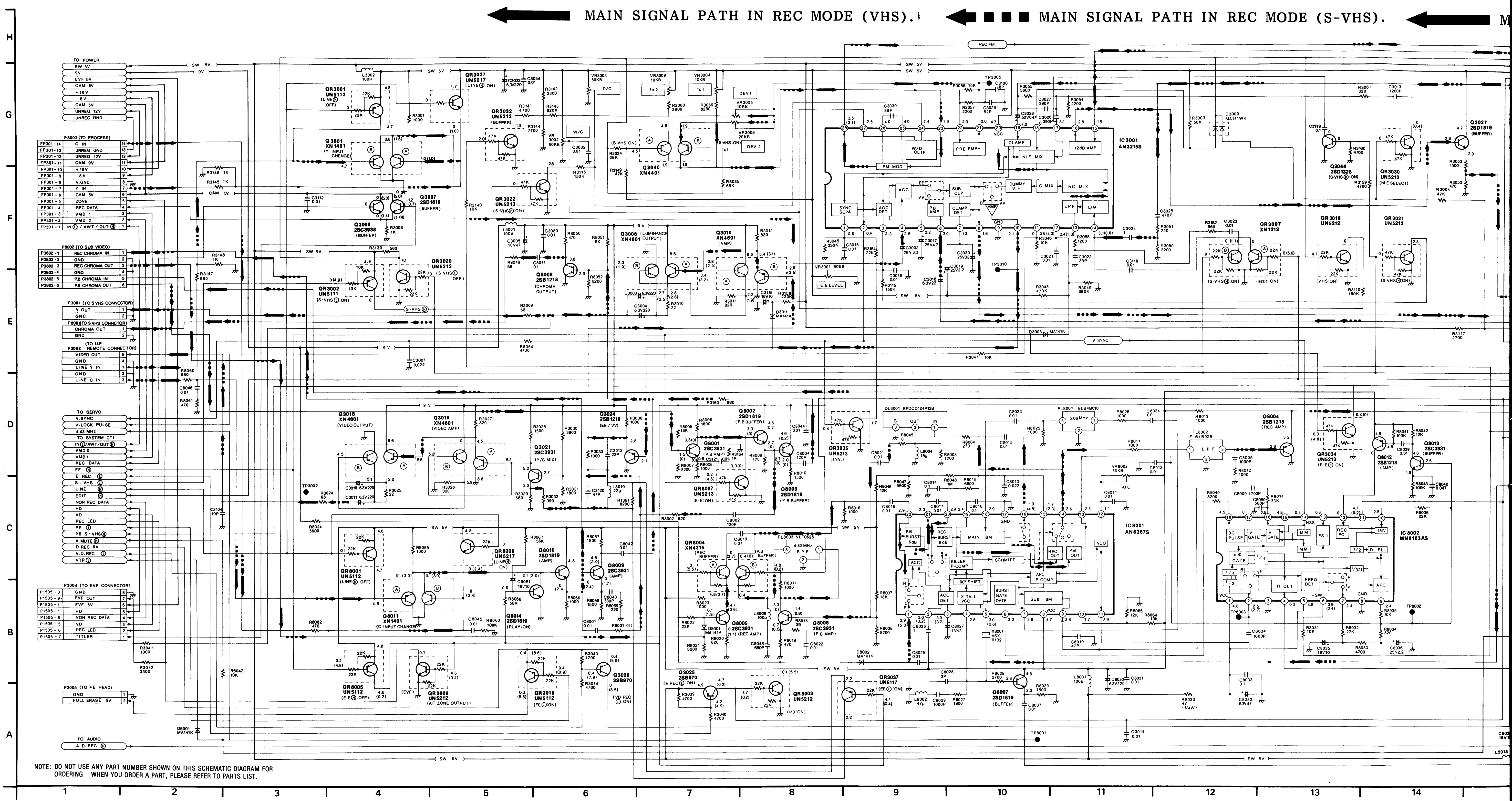


TP8001 REC/PLAY
0.1V/10µsec. div. 0.27Vp-p



TP8003 REC/PLAY
0.2V/1.0µsec. div. 0.8Vp-p

3-18. LUMINANCE, CHROMINANCE & HEAD AMP SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE (VHS).
MAIN SIGNAL PATH IN REC MODE (S-VHS).
TO POWER
SW 5V
9V
EVF 5V
CAM 9V
+16V
-8V
CAM 5V
UNREG 12V
UNREG GND
P3003 (TO PROCESS)
FP301-14 C IN
FP301-13 UNREG GND
FP301-12 UNREG 12V
FP301-11 CAM 9V
FP301-10 +16V
FP301-9 -8V
FP301-8 V.GND
FP301-7 Y IN
FP301-6 CAM 5V
FP301-5 ZONE
FP301-4 REC DATA
FP301-3 VMD 1
FP301-2 VMD 2
FP301-1 IN/AWT/OUT
P8002 (TO SUB VIDEO)
P3802-1 REC CHROMA IN
P3802-2 GND
P3802-3 REC CHROMA OUT
P3802-4 GND
P3802-5 P.B CHROMA IN
P3802-6 P.B CHROMA OUT
P3001 (TO S-VHS CONNECTOR)
Y OUT
GND
P8001 (TO S-VHS CONNECTOR)
CHROMA OUT
GND
P3002 (TO 14P REMOTE CONNECTOR)
VIDEO OUT
GND
LINE Y IN
GND
LINE C IN
TO SERVO
V.SYNC
V-LOCK PULSE
4.43 MHz
TO SYSTEM CTL
IN/AWT/OUT
VMD 2
VMD 1
REC DATA
EE
E-REC
S-VHS
LINE
EDIT
NON REC DATA
HD
VD
REC LED
FE
PB S-VHS
A.MUTE
D.REC 9V
V.D.REC
VTR
P3004 (TO EVF CONNECTOR)
P1505-3 GND
P1505-9 EVF OUT
P1505-4 EVF 5V
P1505-1 HD
P1505-8 NON REC DATA
P1505-5 VD
P1505-6 REC LED
P1505-7 TITLER
P3005 (TO FE HEAD)
GND
FULL ERASE 9V
TO AUDIO
A.D.REC
REC FM
V SYNC
QR3001 UN5112 (LINE OFF)
Q3001 XN1401 (Y INPUT CHENGE)
Q3006 2SC3938 (BUFFER)
Q3007 2SD1819 (BUFFER)
QR3027 UN5217 (LINE ON)
QR3032 UN5213 (BUFFER)
QR3022 UN5213 (S-VHS ON)
QR3002 UN5111 (S-VHS ON)
QR3020 UN5212 (S-VHS OFF)
Q8008 2SB1218 (CHROMA OUTPUT)
Q3008 XN4601 (LUMINANCE OUTPUT)
Q3010 XN4601 (AMP)
Q3040 XN4401
D/C
fo 2
fo 1
DEV 1
DEV 2
W/C
VR3003 50KB
VR3009 10KB
VR3004 10KB
VR3005 10KB
VR3008 20KB
VR3001 50KB
E-E LEVEL
TP3005
TP3010
IC3001 AN3215S
FM MOD.
W/D CLIP
PRE EMPH.
CLAMP
NLE MIX
12dB AMP
SYNC SEPA.
AGC DET
AGC
SUB CLIP
P.B AMP
CLAMP DET
DUMMY V.H
C MIX
NC MIX
LPF
LIM
VCC
GND
Q3044 2SD1328 (S-VHS ON)
QR3030 UN5213 (NLE SELECT)
Q3027 2SD1819 (BUFFER)
QR3007 XN1212 (S-VHS ON) (EDIT ON)
QR3018 UN5212 (VHS ON)
QR3021 UN5213 (S-VHS ON)
D3009 MA141WK
D3003 MA141K
D3011 MA141A
Q3018 XN4601 (VIDEO OUTPUT)
Q3019 XN4601 (VIDEO AMP)
Q3021 2SC3931 (Y/C MIX)
Q3024 2SB1218 (EE/VV)
TP3002
Q8002 2SD1819 (P.B BUFFER)
Q8001 2SC3931 (P.B AMP)
Q8003 2SD1819 (P.B BUFFER)
QR8007 UN5213 (E-E ON)
QR3035 UN5213 (INV.)
DL3001 EFDCD124A13B
FL8001 ELB4B010
5.06 MHz
FL8002 ELB4B025
LPF
Q8004 2SB1218 (REC AMP)
QR3034 UN5213 (E-E ON)
Q8012 2SB1218 (AMP)
Q8013 2SC3931 (BUFFER)
QR8001 UN5112 (LINE OFF)
QR8006 UN5217 (LINE ON)
Q8010 2SD1819 (AMP)
Q8009 2SC3931 (AMP)
Q8011 XN1401 (C INPUT CHANGE)
Q8014 2SD1819 (PLAY ON)
QR8004 XN4215 (REC BUFFER)
FL8003 VLF0626
4.43 MHz BPF
Q8005 2SC3931 (REC AMP)
Q8006 2SC3931 (P.B AMP)
D8001 MA141A
D8002 MA141K
IC8001 AN6367S
PB BURST -6dB
REC BURST 6dB
MAIN BM
REC OUT
PB OUT
VCO
ACC
KILLER P-COMP
SCHMITT
90° SHIFT
APC P-COMP
ACC DET
X TALL VCO
BURST GATE DATE
SUB BM
X8001 VSX 0132
IC8002 MN5163AS
BG PULSE
V GATE
HSS
FS 1
REC PC
INV
MM
1/2
D-PLL
4Φ GATE
H OUT
FREQ DET
HSW
AFC
TP8002
TP8003
TP8001
QR8005 UN5112 (E-E OFF)
QR3006 UN5212 (AF ZONE OUTPUT)
QR3019 UN5112 (FE ON)
Q3026 2SB970 (VD REC ON)
Q3025 2SB970 (E.REC ON)
QR8003 UN5212 (P.B ON)
QR3037 UN5117 (EE ON)
Q8007 2SD1819 (BUFFER)
D5001 MA141K
H
G
F
E
D
C
B
A
1
2
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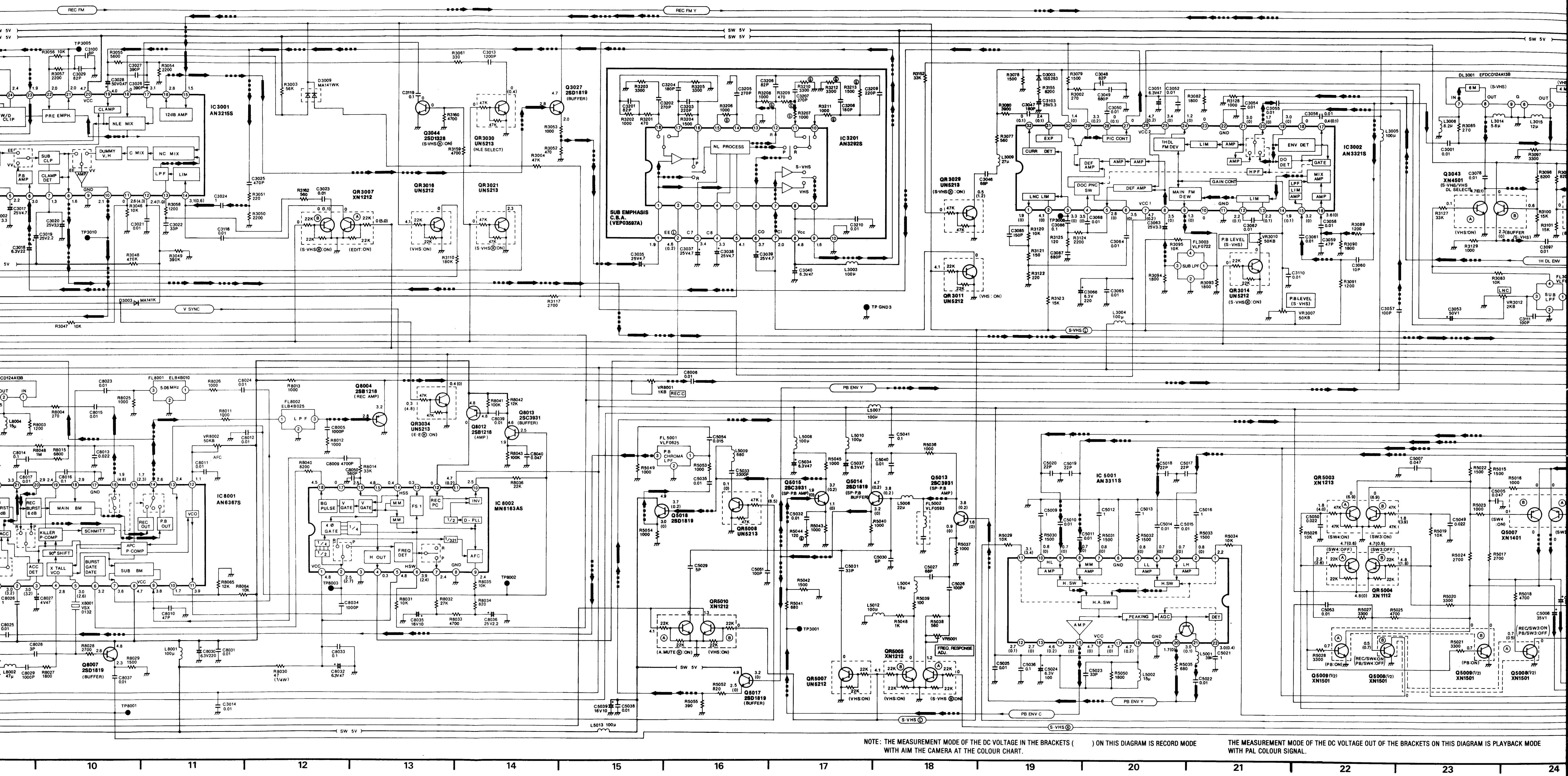
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

◄■■■ MAIN SIGNAL PATH IN REC MODE (S-VHS). ◄━━ MAIN SIGNAL PATH IN PLAYBACK MODE (VHS). ◄■■■ MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)


REC FM
REC FM Y
SW 5V
IC3001 AN3215S
PRE EMPH.
CLAMP
NLE MIX
12dB AMP
DUMMY V,H
C MIX
NC MIX
SUB CLP
CLAMP DET
P.B AMP
LPF
LIM
Q3044 2SD1328 (S-VHS Ⓗ:ON)
QR3030 UN5213 (NLE SELECT)
Q3027 2SD1819 (BUFFER)
QR3007 XN1212
QR3018 UN5212
QR3021 UN5213
(S-VHS Ⓗ:ON)
(EDIT:ON)
(VHS:ON)
TP3010
TP3005
D3009 MA141WK
D3003 MA141K
V SYNC
SUB EMPHASIS C.B.A. (VEP03587A)
NL PROCESS
IC3201 AN3292S
S-VHS
VHS
TP GND3
QR3029 UN5213 (S-VHS Ⓛ:ON)
QR3011 UN5212 (VHS:ON)
IC3002 AN3321S
EXP
CURR DET
PIC CONT
DEF AMP
LNC LIM
DOC PNC SW
1HDL FM DEV
MAIN FM DEW
ENV DET
GAIN CONT
HPF
MIX AMP
FL3003 VLF0722
SUB LPF
P.B LEVEL (S-VHS)
QR3014 UN5212 (S-VHS Ⓗ:ON)
S-VHS Ⓛ
DL3001 EFDCD124A13B
Q3043 XN4501 (S-VHS/VHS DL SELECT)
(VHS:ON)
(BUFFER)
1H DL ENV
LNC
SUB LPF
IC8001 AN6367S
MAIN BM
SUB BM
REC BURST 6dB
KILLER P.COMP
SCHMITT
90° SHIFT
X TALL VCO
ACC DET
BURST GATE DATE
APC P.COMP
REC OUT
P.B OUT
VCO
AFC
FL8001 ELB4B010
5.06 MHz
FL8002 ELB4B025
Q8004 2SB1218 (REC AMP)
QR3034 UN5213 (E-E Ⓗ:ON)
Q8012 2SB1218 (AMP)
Q8013 2SC3931 (BUFFER)
IC8002 MN6163AS
BG PULSE
V GATE
FS 1
REC PC
INV
H OUT
FREQ DET
1/2 D-PLL
Q8007 2SD1819 (BUFFER)
X8001 VSX 0132
TP8001
TP8002
TP8003
VR8001 1KB REC:C
VR8002 50KB
PB ENV Y
FL5001 VLF0625
P.B CHROMA LPF
Q5018 2SD1819
QR5008 UN5213
Q5015 2SC3931 (SP:P.B AMP)
Q5014 2SD1819 (SP:P.B BUFFER)
Q5013 2SC3931 (SP:P.B AMP)
FL5002 VLF0593
QR5010 XN1212 (A.MUTE Ⓗ:ON) (VHS:ON)
Q5017 2SD1819 (BUFFER)
TP3001
QR5007 UN5212
QR5005 XN1212
(S-VHS Ⓗ:ON)
VR5001 FREQ. RESPONSE ADJ.
IC5001 AN3311S
HL AMP
MM AMP
LL AMP
LH AMP
H.SW
H.A.SW
PEAKING
AGC
DET
PB ENV C
S-VHS Ⓗ
QR5003 XN1213
QR5004 XN1112
Q5007 XN1401
Q5009(1/2) XN1501
Q5008(1/2) XN1501
(SW4:ON)
(SW3:ON)
(SW4:OFF)
(SW3:OFF)
(PB:ON)
REC/SW4:ON PB/SW4:OFF
REC/SW3:ON PB/SW3:OFF
L5013 100µ
10
11
12
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14
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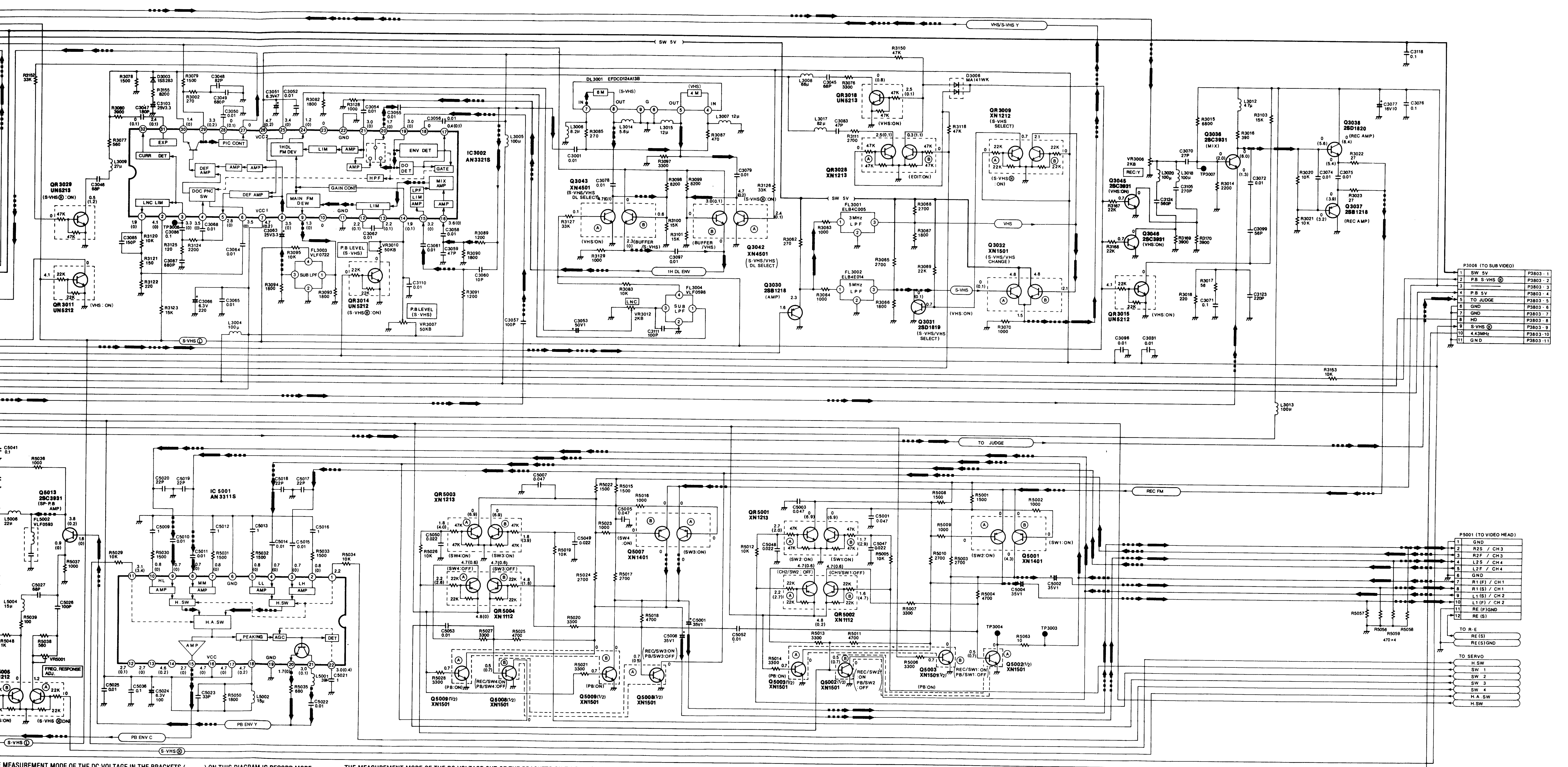
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

ODE (VHS). ◀■ ■ ■ MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)


VHS/S-VHS Y
SW 5V
IC3002 AN3321S
CURR DET
EXP
PIC CONT
1HDL FM DEV
LIM
AMP
ENV DET
DEF AMP
DOC PNC SW
LNC LIM
MAIN FM DEW
GAIN CONT
LPF
MIX AMP
GATE
HPF
DO DET
P.B LEVEL (S-VHS)
SUB LPF
QR3029 UN5213
QR3011 UN5212
QR3014 UN5212
DL3001 EFDCD124A13B
1H DL ENV
Q3043 XN4501
Q3042 XN4501
Q3030 2SB1218
QR3018 UN5213
QR3028 XN1213
FL3001 ELB4C005 3MHz LPF
FL3002 ELB4E014 5MHz LPF
Q3031 2SD1819
QR3009 XN1212
Q3032 XN1501
Q3045 2SC3931
Q3046 2SC3931
Q3036 2SC3931
Q3038 2SD1820
Q3037 2SB1218
QR3015 UN5212
S-VHS Ⓗ
TO JUDGE
REC FM
Q5013 2SC3931
IC5001 AN3311S
HL AMP
MM AMP
LL AMP
LH AMP
H.SW
H.A.SW
PEAKING
AGC
DET
PB ENV C
PB ENV Y
QR5003 XN1213
QR5004 XN1112
Q5007 XN1401
Q5008 XN1501
Q5009 XN1501
QR5001 XN1213
QR5002 XN1112
Q5001 XN1401
Q5003 XN1501
Q5002 XN1501
TP3004
TP3003
P3006 (TO SUB VIDEO)
1 SW 5V P3803·1
2 P.B S-VHS Ⓗ P3803·2
3 ——— P3803·3
4 P.B 5V P3803·4
5 TO JUDGE P3803·5
6 GND P3803·6
7 GND P3803·7
8 HD P3803·8
9 S-VHS Ⓗ P3803·9
10 4.43MHz P3803·10
11 GND P3803·11
P5001 (TO VIDEO HEAD)
1 GND
2 R2S / CH3
3 R2F / CH3
4 L2S / CH4
5 L2F / CH4
6 GND
7 R1(F) / CH1
8 R1(S) / CH1
9 L1(S) / CH2
10 L1(F) / CH2
11 RE (F)GND
12 RE (S)
TO R-E
RE (S)
RE (S)GND
TO SERVO
H.SW
SW 1
SW 2
SW 3
SW 4
H.A.SW
H.SW

E MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE
H AIM THE CAMERA AT THE COLOUR CHART.

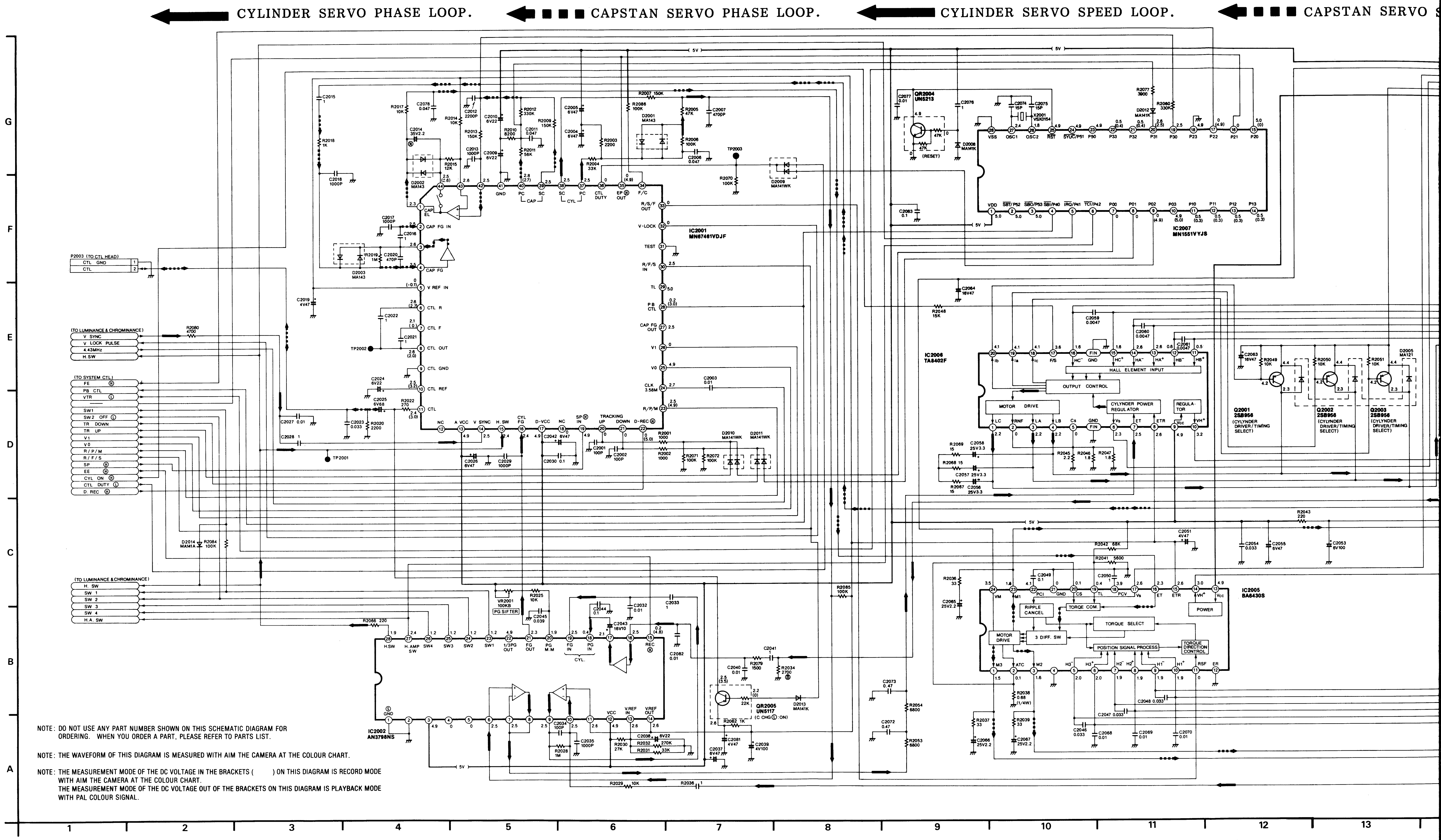
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Next Page:
SERVO & SUB VIDEO Section

3-19. SERVO SCHEMATIC DIAGRAM

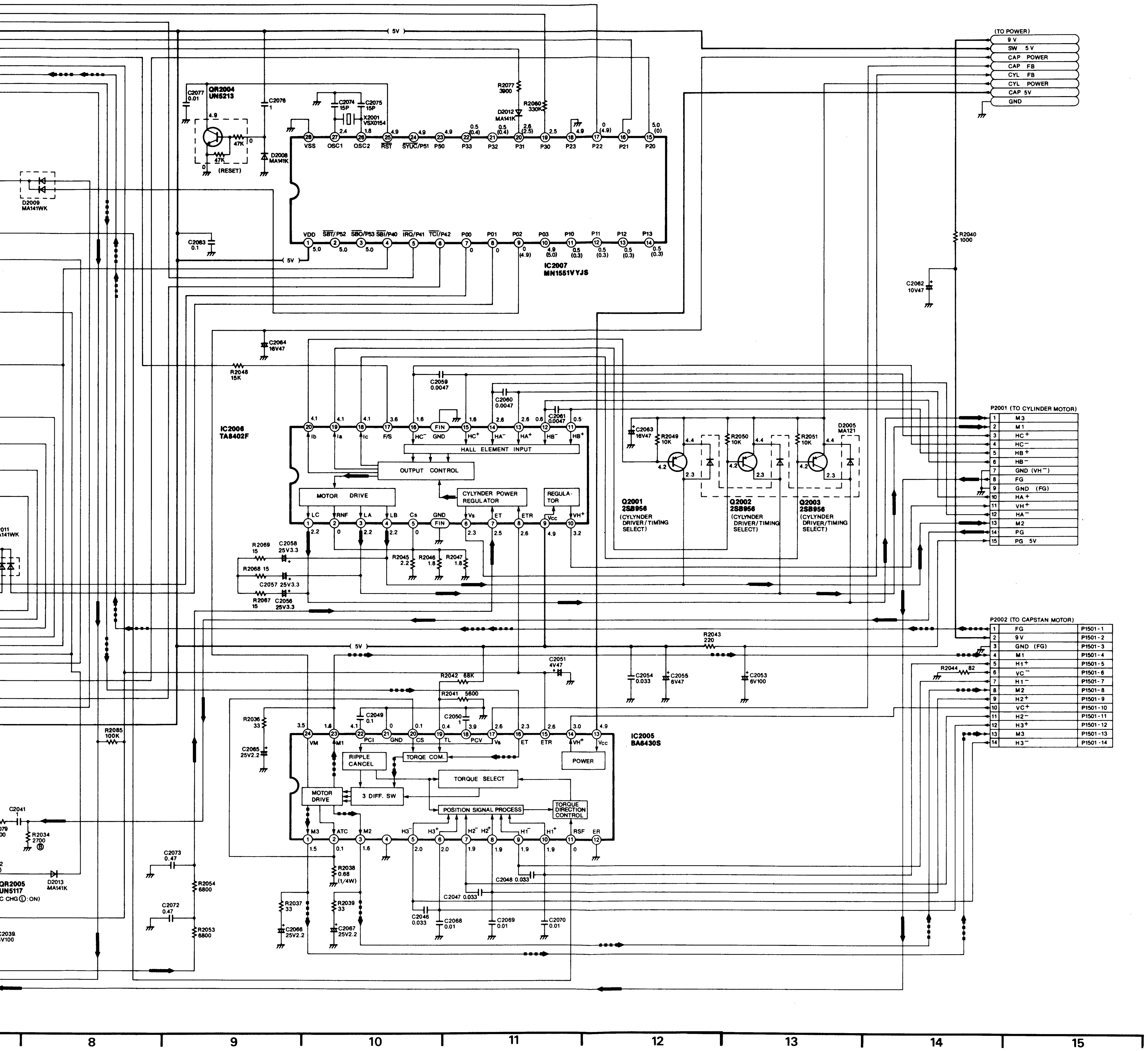

CYLINDER SERVO PHASE LOOP.
CAPSTAN SERVO PHASE LOOP.
CYLINDER SERVO SPEED LOOP.
CAPSTAN SERVO
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
P2003 (TO CTL HEAD)
CTL GND
CTL
(TO LUMINANCE & CHROMINANCE)
V. SYNC
V. LOCK PULSE
4.43MHz
H.SW
(TO SYSTEM CTL)
FE
PB CTL
VTR
SW1
SW2 OFF
TR DOWN
TR UP
V1
V0
R/P/M
R/F/S
SP
EE
CYL ON
CTL DUTY
D. REC
(TO LUMINANCE & CHROMINANCE)
H. SW
SW 1
SW 2
SW 3
SW 4
H.A. SW
IC2001
MN67461VDJF
IC2002
AN3798NS
IC2005
BA6430S
IC2006
TA8402F
IC2007
MN1551VYJS
QR2004
UN5213
(RESET)
QR2005
UN5117
(C CHG Ⓛ:ON)
Q2001
2SB956
(CYLINDER DRIVER/TIMING SELECT)
Q2002
2SB956
(CYLINDER DRIVER/TIMING SELECT)
Q2003
2SB956
(CYLINDER DRIVER/TIMING SELECT)
TP2001
TP2002
TP2003
VR2001
100KB
PG SIFTER
5V
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLYNDER POWER REGULATOR
REGULATOR
RIPPLE CANCEL
TORQUE COM
TORQUE SELECT
MOTOR DRIVE
3 DIFF. SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
POWER

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

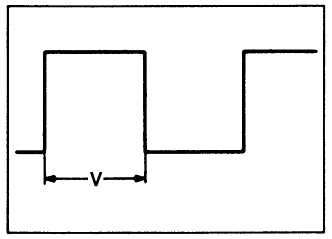
NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

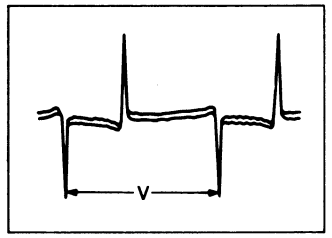
SE LOOP. CYLINDER SERVO SPEED LOOP. ■ ■ ■ CAPSTAN SERVO SPEED LOOP.


IC2007
MN1551VYJS
VSS OSC1 OSC2 RST SYUC/P51 P50 P33 P32 P31 P30 P23 P22 P21 P20
VDD SBT/P52 SBO/P53 SBI/P40 IRQ/P41 TCI/P42 P00 P01 P02 P03 P10 P11 P12 P13
QR2004
UN5213
(RESET)
D2008
MA141K
X2001
VSX0154
D2009
MA141WK
D2012
MA141K
R2077
3900
R2060
330K
R2040
1000
C2062
10V47
5V
IC2006
TA8402F
OUTPUT CONTROL
HALL ELEMENT INPUT
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULA-TOR
Q2001
2SB956
(CYLYNDER DRIVER/TIMING SELECT)
Q2002
2SB956
(CYLYNDER DRIVER/TIMING SELECT)
Q2003
2SB956
(CYLYNDER DRIVER/TIMING SELECT)
D2005
MA121
(TO POWER)
9 V
SW 5 V
CAP POWER
CAP FB
CYL FB
CYL POWER
CAP 5V
GND
P2001 (TO CYLINDER MOTOR)
1 M3
2 M1
3 HC+
4 HC−
5 HB+
6 HB−
7 GND (VH−)
8 FG
9 GND (FG)
10 HA+
11 VH+
12 HA−
13 M2
14 PG
15 PG 5V
P2002 (TO CAPSTAN MOTOR)
1 FG P1501-1
2 9V P1501-2
3 GND (FG) P1501-3
4 M1 P1501-4
5 H1+ P1501-5
6 VC− P1501-6
7 H1− P1501-7
8 M2 P1501-8
9 H2+ P1501-9
10 VC+ P1501-10
11 H2− P1501-11
12 H3+ P1501-12
13 M3 P1501-13
14 H3− P1501-14
IC2005
BA8430S
RIPPLE CANCEL
TORQE COM.
TORQUE SELECT
POWER
MOTOR DRIVE
3 DIFF. SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
QR2005
UN5117
D2013
MA141K
8
9
10
11
12
13
14
15

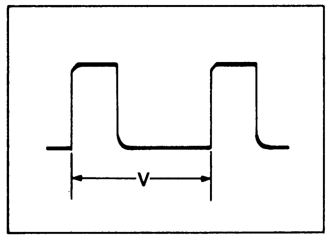
SERVO CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 2000 Series)



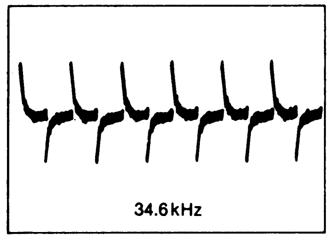
TP2001 REC/PLAY
1.0V/10msec. div. 4.0Vp-p



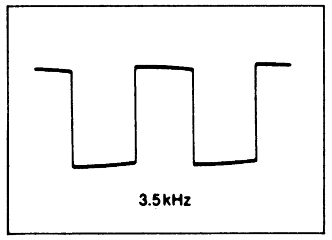
TP2002 PLAY
1.0V/10msec. div. 4.5Vp-p



TP2002 REC
2V/10msec. div. 5.0Vp-p



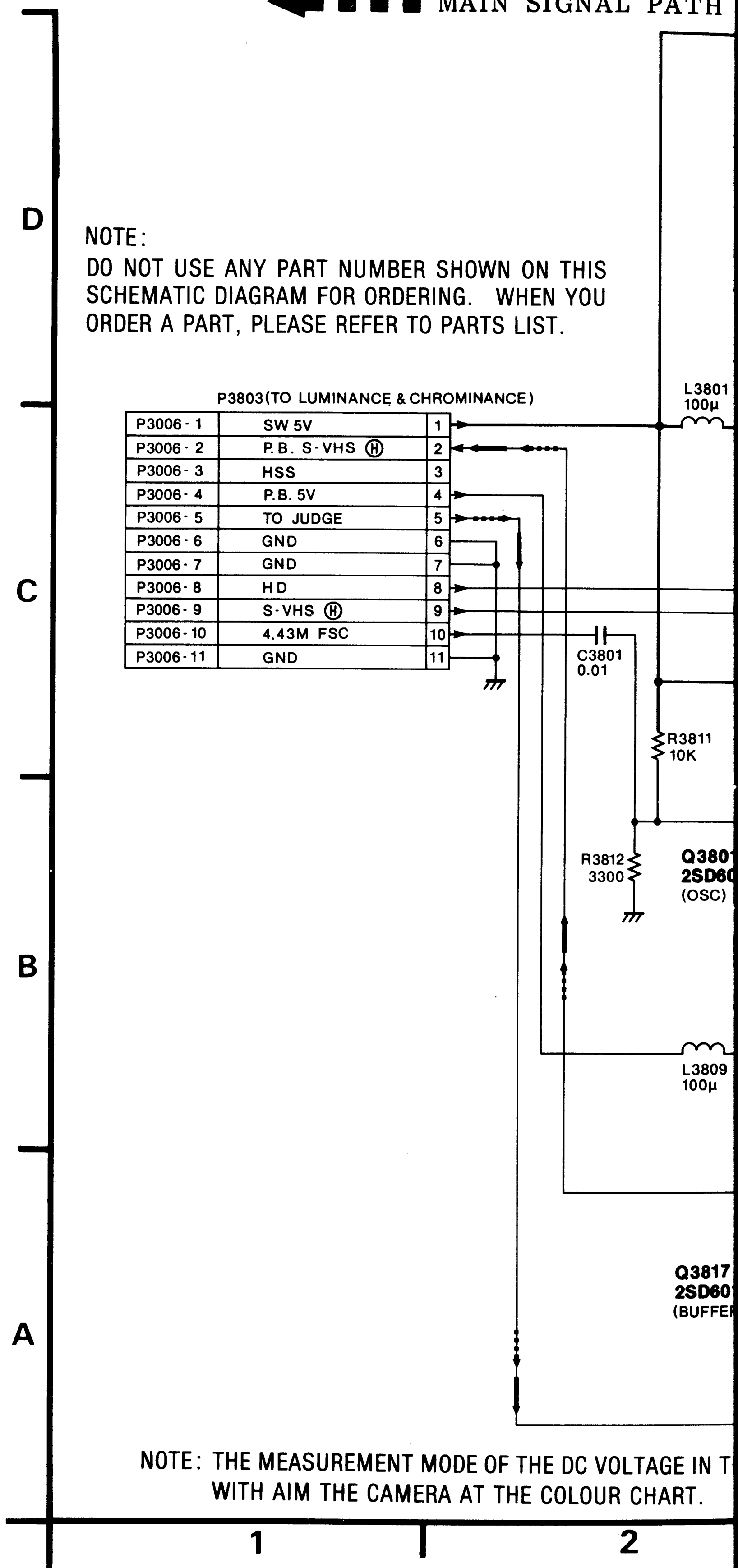
TP2003 PLAY
50mV/20µsec. div. 150mVp-p



TP2003 REC
2.0V/20msec. div. 4.5Vp-p

3-20. SUB VIDEO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH
■ ■ ■ MAIN SIGNAL PATH

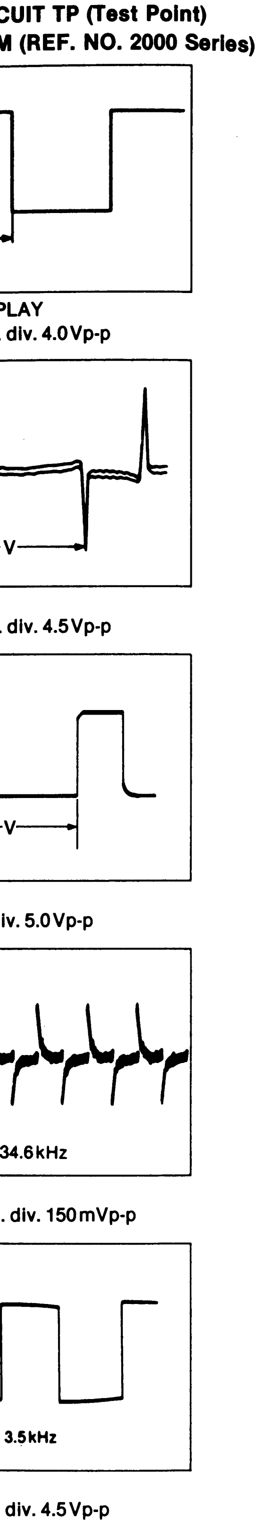

D
C
B
A
1
2
L3801
100µ
C3801
0.01
R3811
10K
R3812
3300
Q3801
2SD60
(OSC)
L3809
100µ
Q3817
2SD60
(BUFFER

NOTE:
DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

P3803(TO LUMINANCE & CHROMINANCE)

P3006 - 1	SW 5V	1
P3006 - 2	P.B. S-VHS Ⓗ	2
P3006 - 3	HSS	3
P3006 - 4	P.B. 5V	4
P3006 - 5	TO JUDGE	5
P3006 - 6	GND	6
P3006 - 7	GND	7
P3006 - 8	HD	8
P3006 - 9	S-VHS Ⓗ	9
P3006 - 10	4.43M FSC	10
P3006 - 11	GND	11

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN T
WITH AIM THE CAMERA AT THE COLOUR CHART.



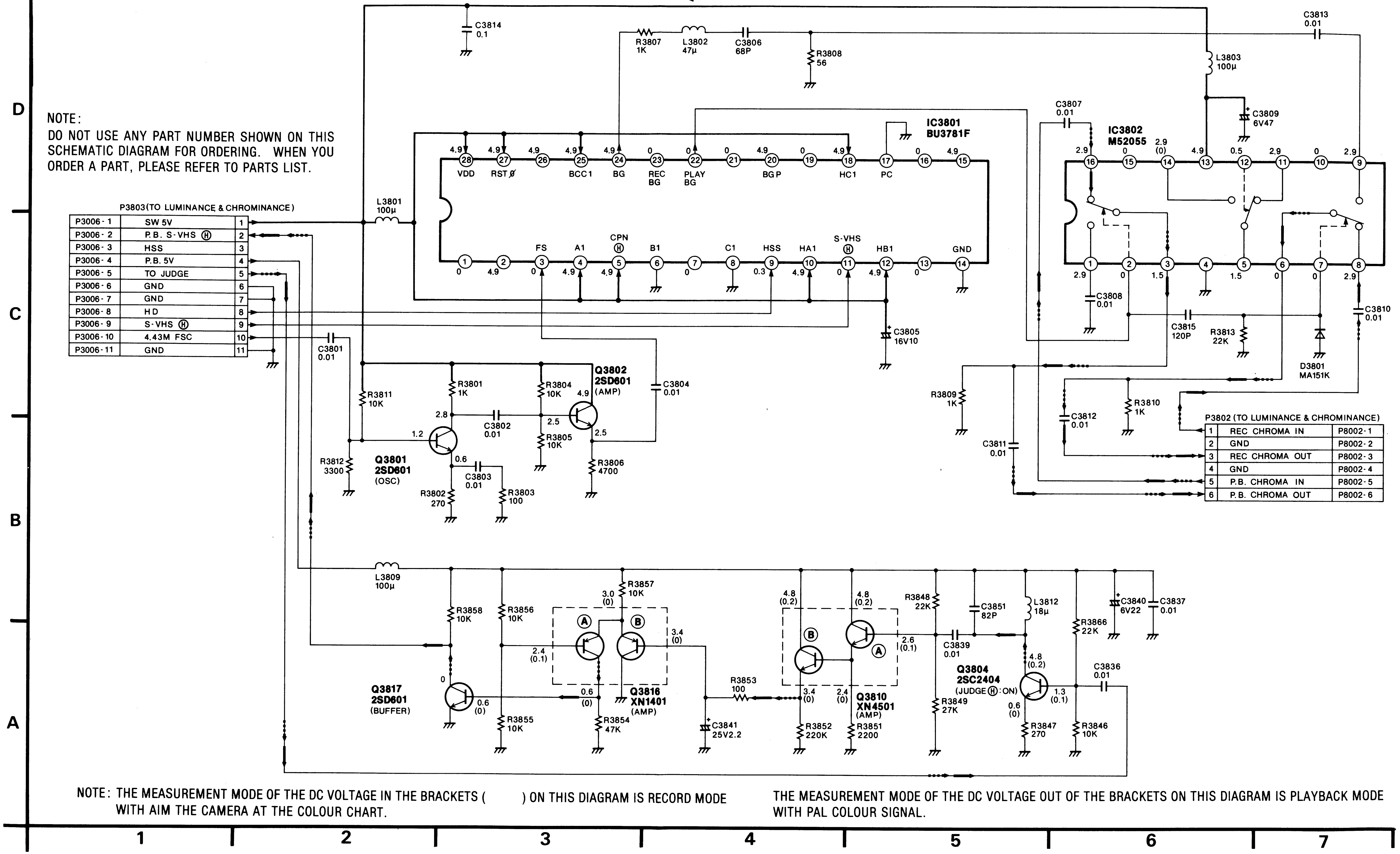
3-20. SUB VIDEO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE (VHS).

MAIN SIGNAL PATH IN REC MODE (S-VHS).

MAIN SIGNAL PATH IN PLAYBACK MODE (VHS).

MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS).


D
C
B
A
1
2
3
4
5
6
7
IC3801
BU3781F
VDD
RST ø
BCC1
BG
REC BG
PLAY BG
BGP
HC1
PC
FS
A1
CPN Ⓗ
B1
C1
HSS
HA1
S-VHS Ⓗ
HB1
GND
IC3802
M52055
C3814 0.1
R3807 1K
L3802 47µ
C3806 68P
R3808 56
C3813 0.01
L3803 100µ
C3807 0.01
C3809 6V47
L3801 100µ
C3805 16V10
C3808 0.01
C3815 120P
R3813 22K
C3810 0.01
D3801 MA151K
R3809 1K
C3811 0.01
C3812 0.01
R3810 1K
C3801 0.01
R3811 10K
R3812 3300
R3801 1K
R3802 270
R3803 100
C3802 0.01
C3803 0.01
Q3801 2SD601 (OSC)
R3804 10K
R3805 10K
R3806 4700
Q3802 2SD601 (AMP)
C3804 0.01
L3809 100µ
R3858 10K
R3856 10K
R3855 10K
Q3817 2SD601 (BUFFER)
R3857 10K
R3854 47K
Q3816 XN1401 (AMP)
Ⓐ
Ⓑ
C3841 25V2.2
R3853 100
Q3810 XN4501 (AMP)
R3852 220K
R3851 2200
R3848 22K
R3849 27K
C3851 82P
C3839 0.01
L3812 18µ
Q3804 2SC2404 (JUDGE Ⓗ:ON)
R3847 270
C3840 6V22
C3837 0.01
R3866 22K
C3836 0.01
R3846 10K

NOTE:
DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

P3803(TO LUMINANCE & CHROMINANCE)

P3006 - 1	SW 5V	1
P3006 - 2	P.B. S-VHS Ⓗ	2
P3006 - 3	HSS	3
P3006 - 4	P.B. 5V	4
P3006 - 5	TO JUDGE	5
P3006 - 6	GND	6
P3006 - 7	GND	7
P3006 - 8	HD	8
P3006 - 9	S-VHS Ⓗ	9
P3006 - 10	4.43M FSC	10
P3006 - 11	GND	11

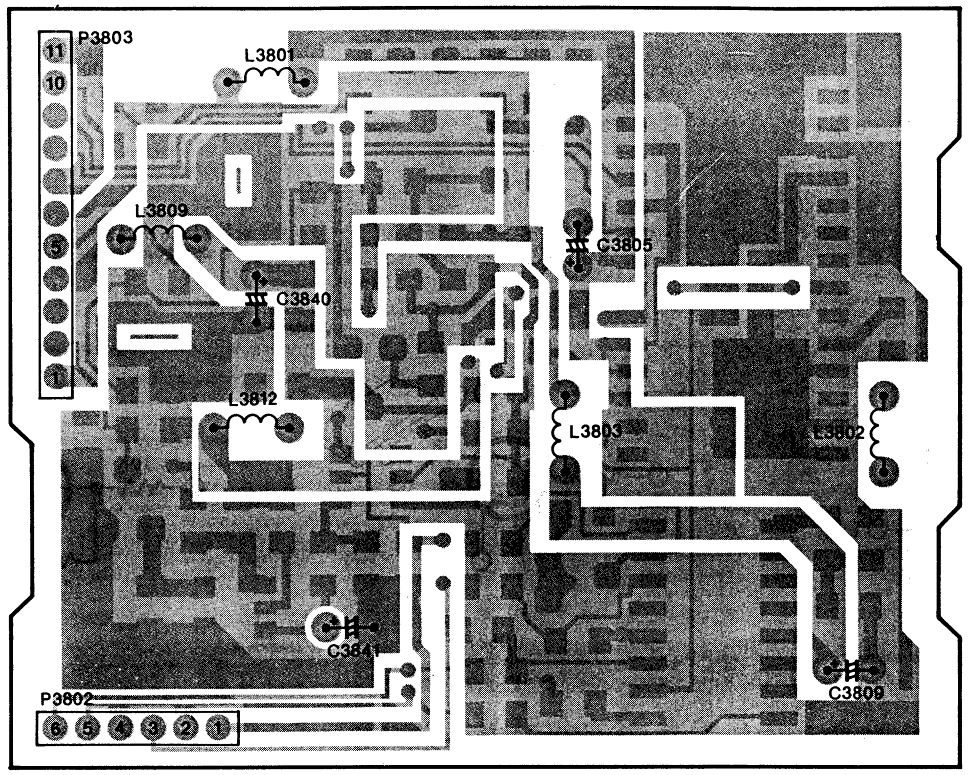
P3802 (TO LUMINANCE & CHROMINANCE)

1	REC CHROMA IN	P8002 - 1
2	GND	P8002 - 2
3	REC CHROMA OUT	P8002 - 3
4	GND	P8002 - 4
5	P.B. CHROMA IN	P8002 - 5
6	P.B. CHROMA OUT	P8002 - 6

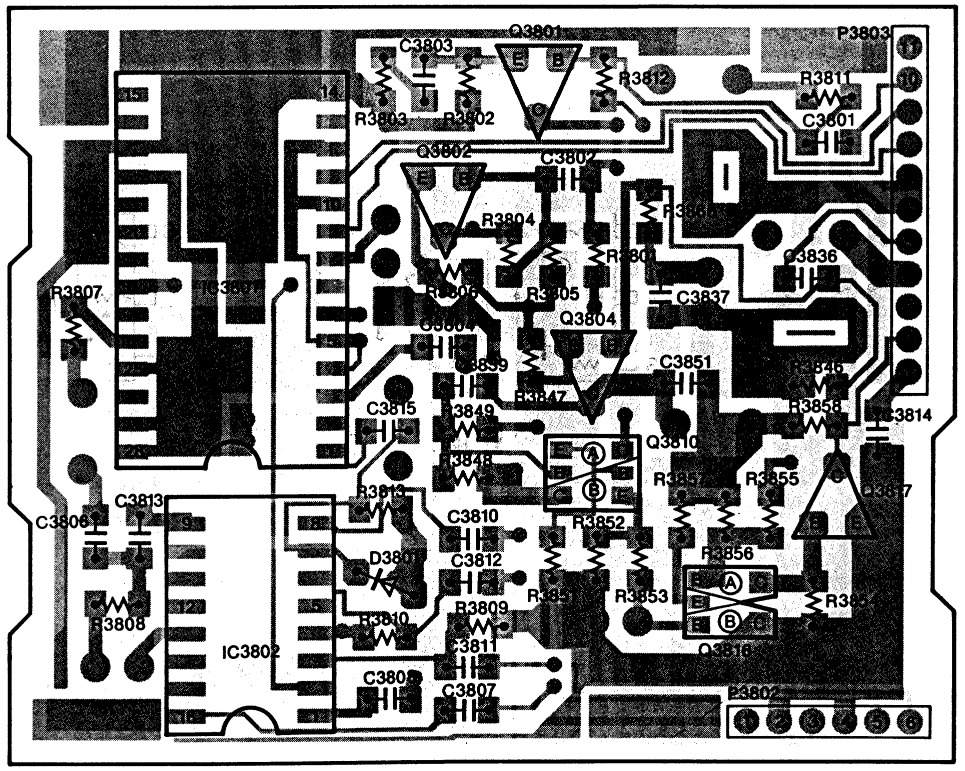
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-21. SUB VIDEO C.B.A. (VEP03583A)


P3803
11
10
1
L3801
L3809
C3805
C3840
L3812
L3803
L3802
C3841
C3809
P3802
6
5
4
3
2
1

REF. NO. 3800 SERIES (COMPONENT SIDE)

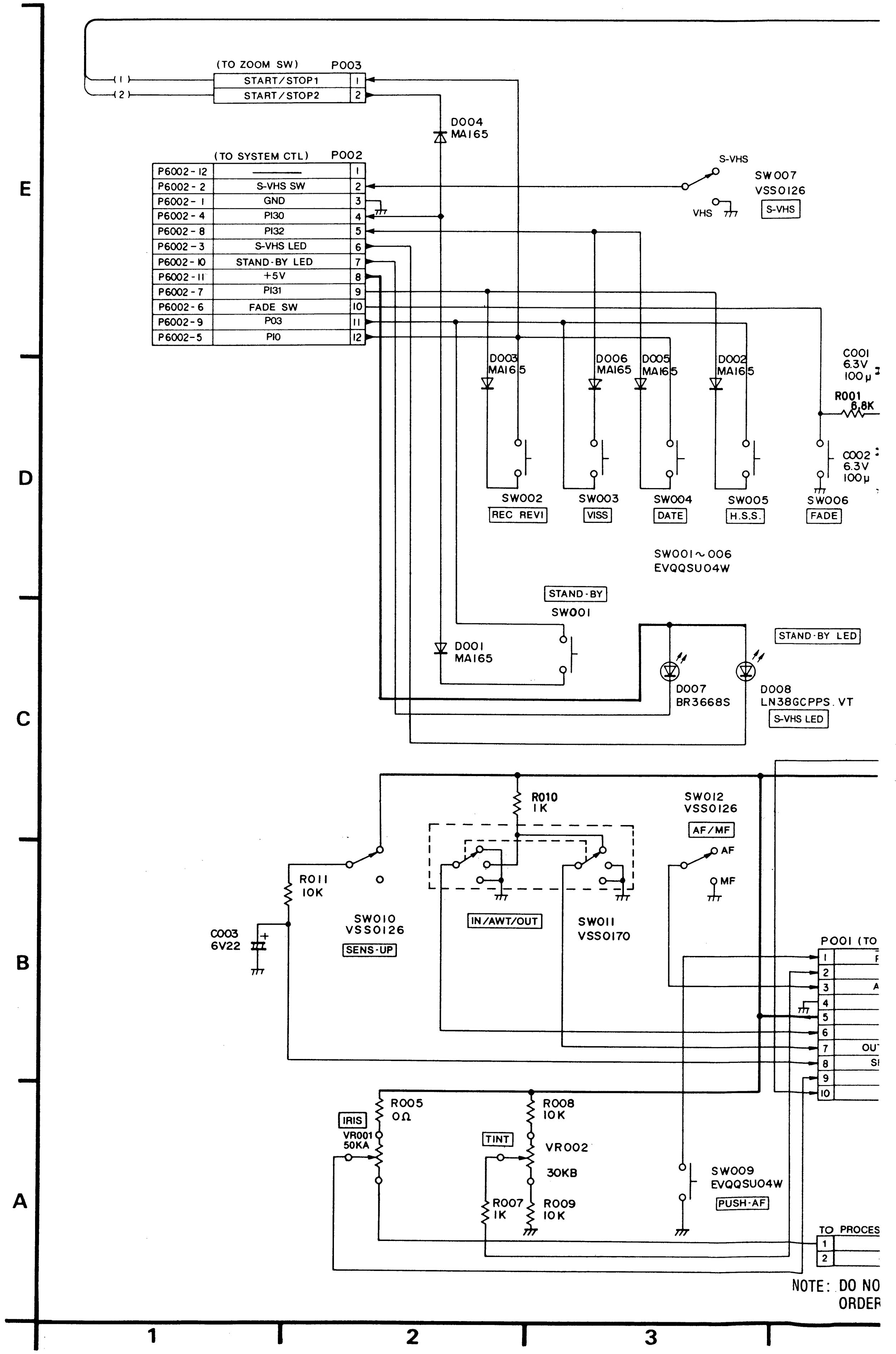

C3803
Q3801
P3803
R3812
R3811
C3801
R3803
R3802
Q3802
C3802
R3804
R3806
R3801
C3836
R3807
IC3801
R3805
C3837
Q3804
C3851
C3815
R3849
R3847
R3846
R3858
C3814
R3848
Q3810
R3857
R3855
C3806
C3813
R3813
C3810
R3852
D3801
C3812
R3856
R3808
R3810
R3809
R3851
R3853
C3811
Q3816
IC3802
C3808
C3807
P3802
D
C
B
A
1
2
3

REF. NO. 3800 SERIES (FOIL SIDE)

SUB VIDEO C.B.A.	
Transistor	
Q3801	B-2 Ⓕ
Q3802	B-2 Ⓕ
Q3804	B-2 Ⓕ
Q3810	A-2 Ⓕ
Q3816	A-2 Ⓕ
Q3817	A-3 Ⓕ
Integrated Circuit	
IC3801	B-1 Ⓕ
IC3802	A-1 Ⓕ
Connector	
P3802	A-3 Ⓕ
P3802	C-1 Ⓒ
P3803	B-3 Ⓕ
P3803	D-1 Ⓒ

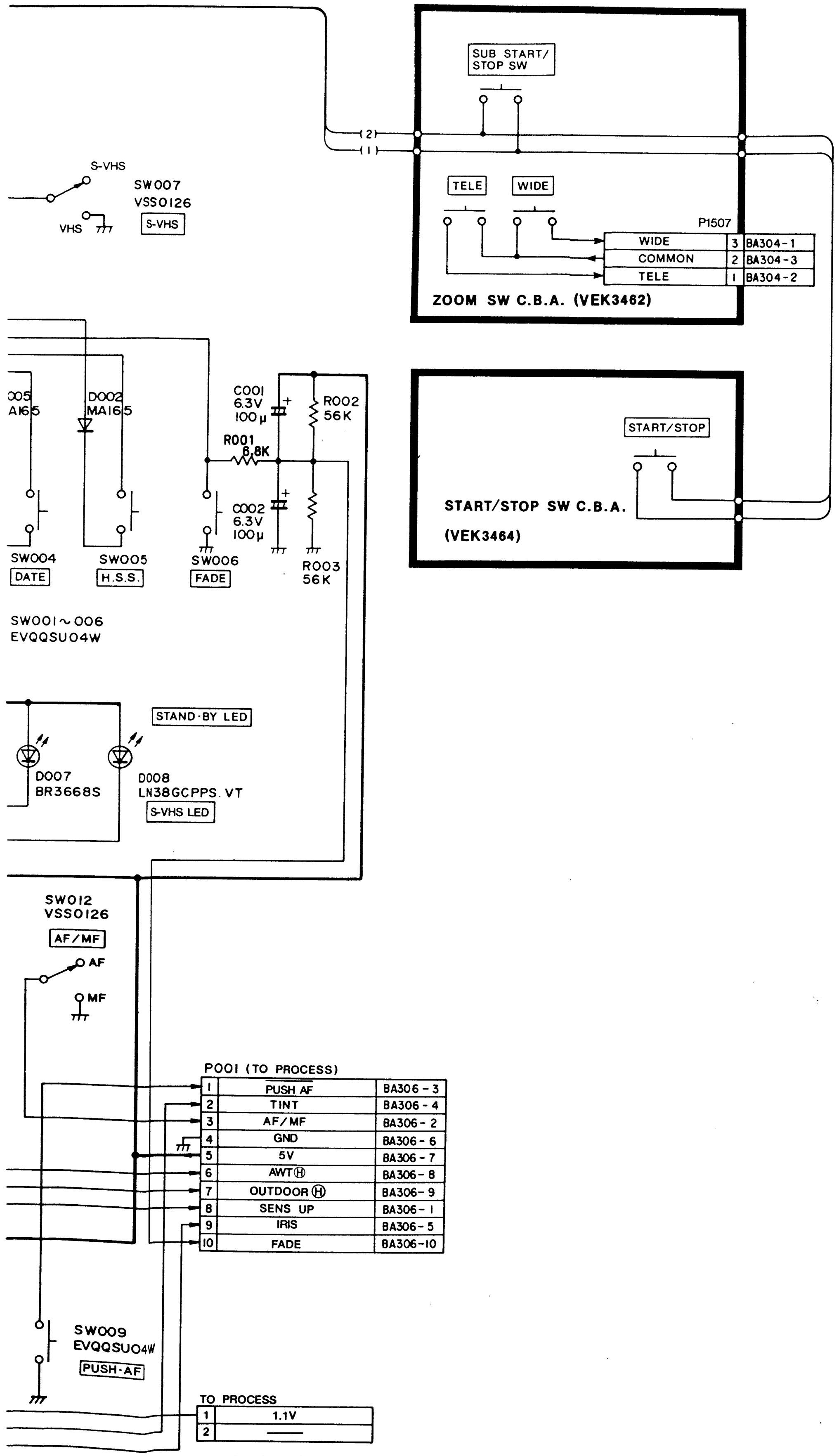
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-22. CAMERA OPERATION SCHEMATIC DIAGRAM


(TO ZOOM SW)
P003
(1)
(2)
START/STOP1
START/STOP2
D004
MA165
(TO SYSTEM CTL)
P002
P6002-12
P6002-2
P6002-1
P6002-4
P6002-8
P6002-3
P6002-10
P6002-11
P6002-7
P6002-6
P6002-9
P6002-5
S-VHS SW
GND
PI30
PI32
S-VHS LED
STAND-BY LED
+5V
PI31
FADE SW
P03
PI0
S-VHS
SW007
VSS0126
VHS
S-VHS
D003
MA165
D006
MA165
D005
MA165
D002
MA165
C001
6.3V
100μ
R001
6.8K
C002
6.3V
100μ
SW002
REC REVI
SW003
VISS
SW004
DATE
SW005
H.S.S.
SW006
FADE
SW001~006
EVQQSU04W
STAND-BY
SW001
D001
MA165
STAND-BY LED
D007
BR3668S
D008
LN38GCPPS.VT
S-VHS LED
R010
1K
SW012
VSS0126
AF/MF
AF
MF
R011
10K
C003
6V22
SW010
VSS0126
SENS-UP
IN/AWT/OUT
SW011
VSS0170
P001 (TO
OU
R005
0Ω
IRIS
VR001
50KA
R008
10K
TINT
VR002
30KB
R007
1K
R009
10K
SW009
EVQQSU04W
PUSH-AF
TO PROCES
E
D
C
B
A
1
2
3

NOTE: DO NO
ORDER

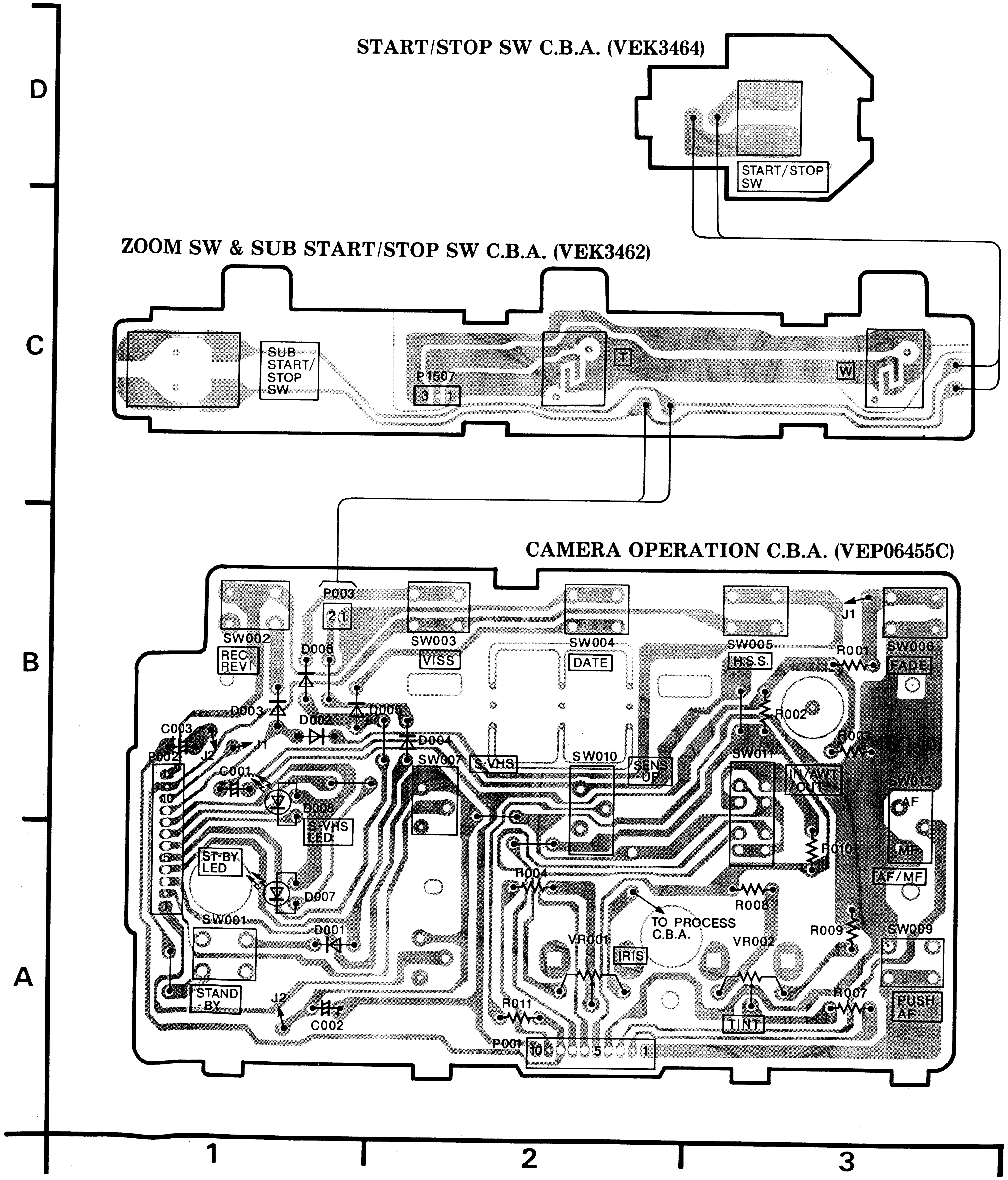
AGRAM


SUB START/ STOP SW
TELE
WIDE
P1507
WIDE 3 BA304-1
COMMON 2 BA304-3
TELE 1 BA304-2
ZOOM SW C.B.A. (VEK3462)
START/STOP
START/STOP SW C.B.A.
(VEK3464)
S-VHS
SW007
VSS0126
S-VHS
VHS
005
A165
D002
MA165
C001
6.3V
100μ
R002
56K
R001
6.8K
C002
6.3V
100μ
R003
56K
SW004
DATE
SW005
H.S.S.
SW006
FADE
SW001～006
EVQQSU04W
STAND-BY LED
D007
BR3668S
D008
LN38GCPPS.VT
S-VHS LED
SW012
VSS0126
AF/MF
AF
MF
P001 (TO PROCESS)
1 PUSH AF BA306-3
2 TINT BA306-4
3 AF/MF BA306-2
4 GND BA306-6
5 5V BA306-7
6 AWTⒽ BA306-8
7 OUTDOOR Ⓗ BA306-9
8 SENS UP BA306-1
9 IRIS BA306-5
10 FADE BA306-10
SW009
EVQQSU04W
PUSH-AF
TO PROCESS
1 1.1V
2 ———

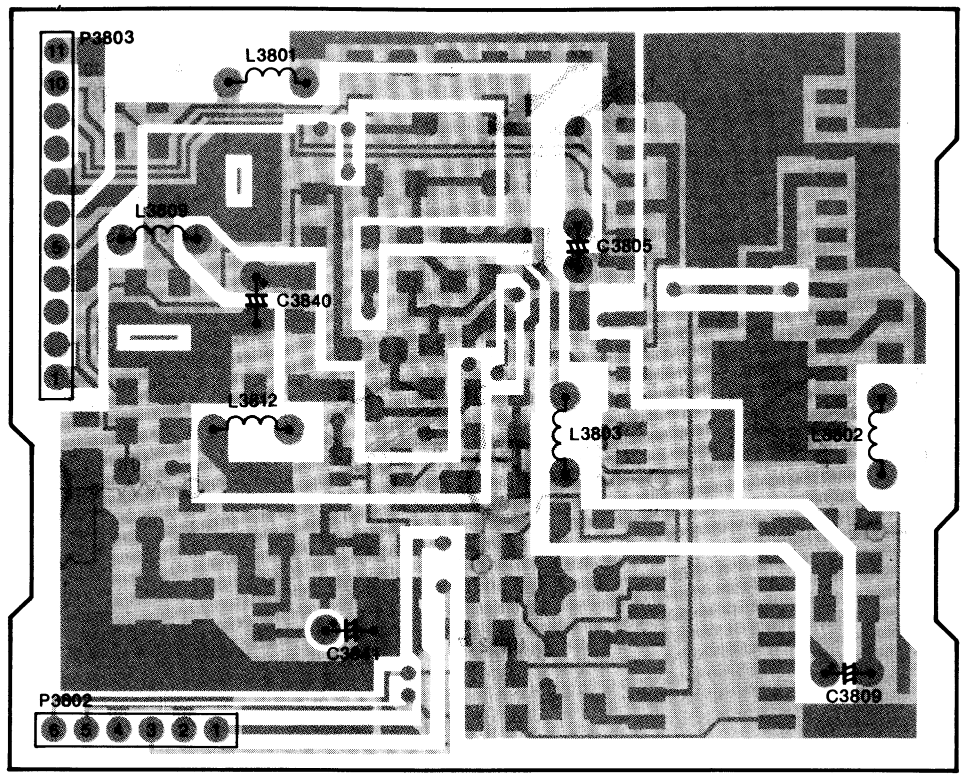
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

4
5

3-23. CAMERA OPERATION C.B.A. (VEP06455C)

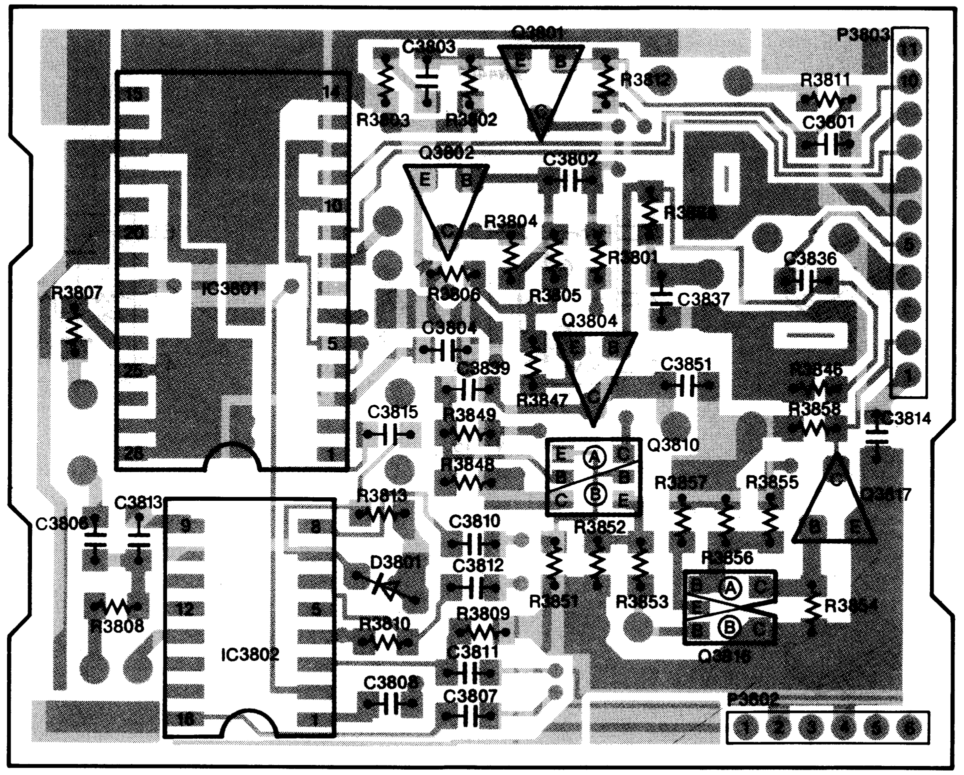

D
C
B
A
1
2
3
START/STOP SW C.B.A. (VEK3464)
START/STOP SW
ZOOM SW & SUB START/STOP SW C.B.A. (VEK3462)
SUB START/ STOP SW
P1507
3 1
T
W
CAMERA OPERATION C.B.A. (VEP06455C)
P003
2 1
SW002
REC REVI
SW003
VISS
SW004
DATE
SW005
H.S.S.
SW006
FADE
J1
R001
D006
D003
D002
D005
D004
C003
J2
J1
P002
10
5
1
C001
D008
S-VHS LED
SW007
S-VHS
SW010
SENS UP
SW011
IN/AWT OUT
R002
R003
SW012
AF
MF
AF/MF
R010
ST-BY LED
D007
R004
R008
TO PROCESS C.B.A.
SW001
D001
VR001
IRIS
VR002
R009
SW009
STAND -BY
J2
C002
R011
TINT
R007
PUSH AF
P001
10
5
1

3-21. SUB VIDEO C.B.A. (VEP03583A)



P3803
L3801
L3809
C3805
C3840
L3812
L3803
L3802
C3841
C3809
P3802

REF. NO. 3800 SERIES (COMPONENT SIDE)



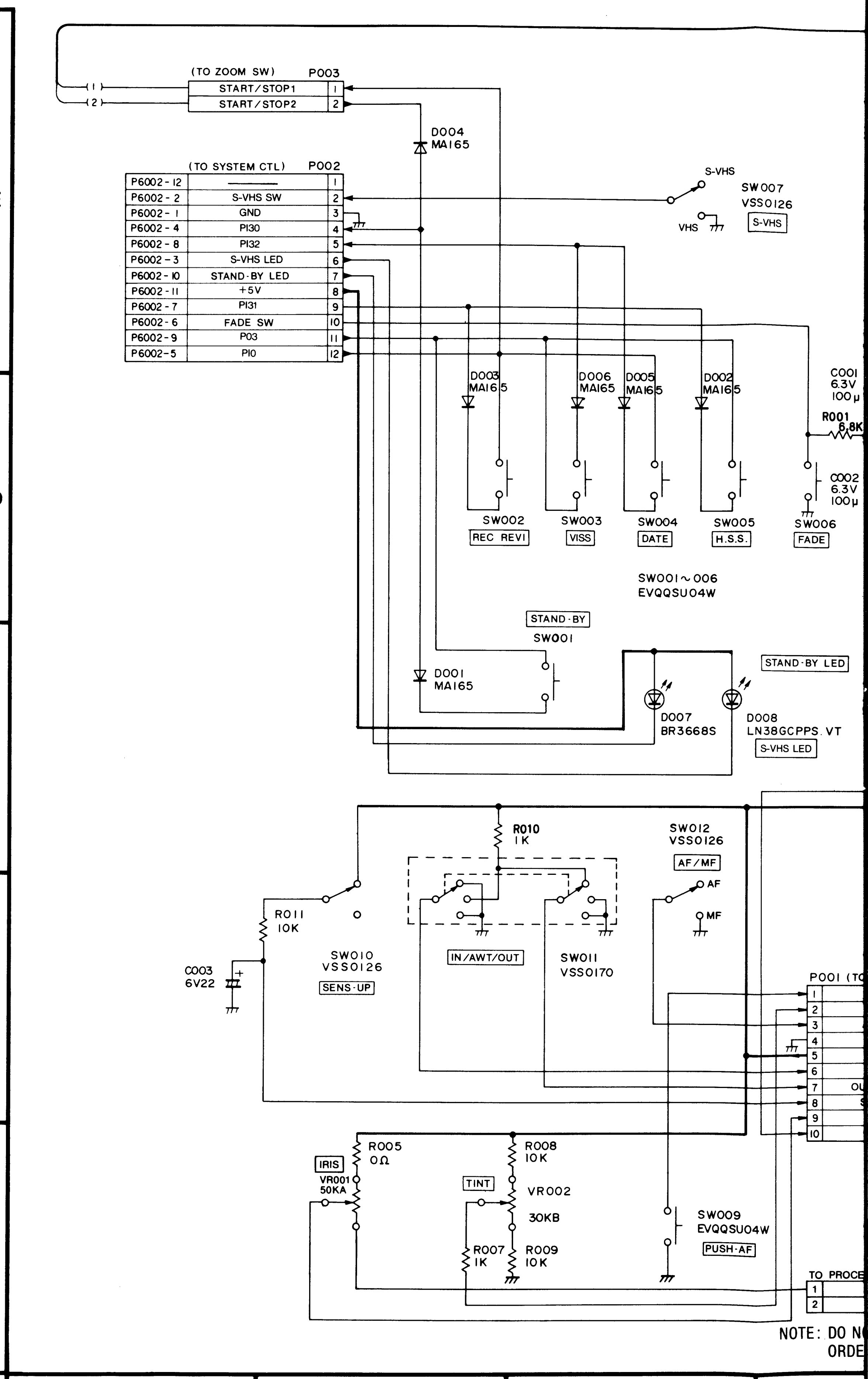
C3803
Q3801
P3803
R3812
R3803
R3802
R3811
C3801
Q3802
C3802
R3804
R3801
C3836
R3807
IC3801
R3806
R3805
C3837
C3804
Q3804
C3839
C3851
R3847
R3846
C3815
R3849
R3858
C3814
R3848
Q3810
R3813
R3857
R3855
Q3817
C3806
C3813
C3810
R3852
D3801
C3812
R3856
R3808
R3810
R3851
R3853
R3854
IC3802
R3809
C3811
Q3816
C3808
C3807
P3802

REF. NO. 3800 SERIES (FOIL SIDE)

SUB VIDEO C.B.A.	
Translstor	
Q3801	B-2 Ⓕ
Q3802	B-2 Ⓕ
Q3804	B-2 Ⓕ
Q3810	A-2 Ⓕ
Q3816	A-2 Ⓕ
Q3817	A-3 Ⓕ
Integrated Circult	
IC3801	B-1 Ⓕ
IC3802	A-1 Ⓕ
Connector	
P3802	A-3 Ⓕ
P3802	C-1 Ⓒ
P3803	B-3 Ⓕ
P3803	D-1 Ⓒ

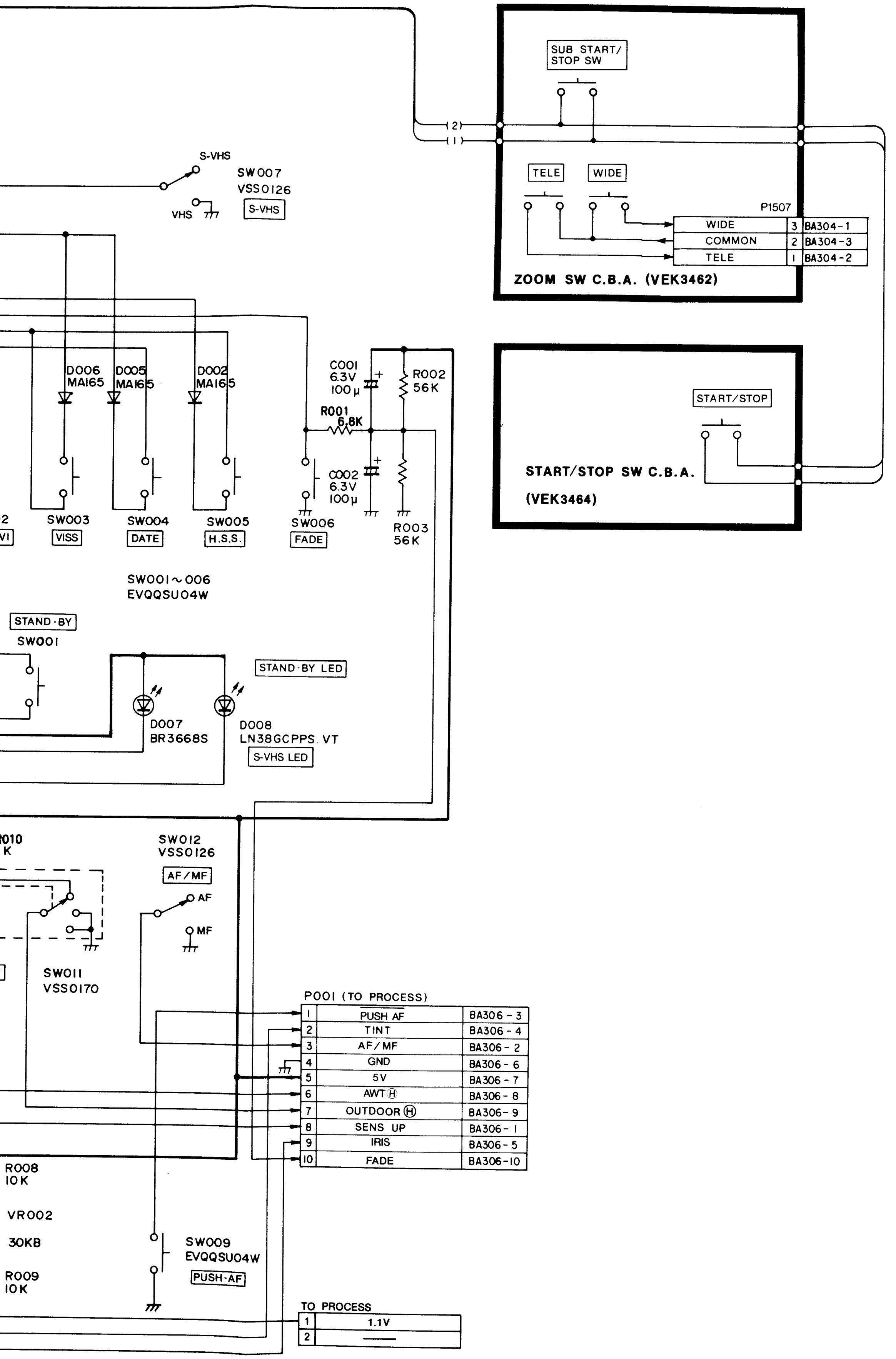
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-22. CAMERA OPERATION SCHEMATIC DIAGRAM



(TO ZOOM SW) P003
START/STOP1
START/STOP2
D004 MA165
(TO SYSTEM CTL) P002
P6002-12
P6002-2 S-VHS SW
P6002-1 GND
P6002-4 PI30
P6002-8 PI32
P6002-3 S-VHS LED
P6002-10 STAND-BY LED
P6002-11 +5V
P6002-7 PI31
P6002-6 FADE SW
P6002-9 P03
P6002-5 PI0
S-VHS
VHS
SW007 VSS0126
S-VHS
D003 MA165
D006 MA165
D005 MA165
D002 MA165
C001 6.3V 100µ
R001 6.8K
C002 6.3V 100µ
SW002 REC REVI
SW003 VISS
SW004 DATE
SW005 H.S.S.
SW006 FADE
SW001~006 EVQQSU04W
STAND-BY SW001
D001 MA165
STAND-BY LED
D007 BR3668S
D008 LN38GCPPS.VT
S-VHS LED
R010 1K
SW012 VSS0126
AF/MF
AF
MF
R011 10K
C003 6V22
SW010 VSS0126
SENS-UP
IN/AWT/OUT
SW011 VSS0170
P001
R005 0Ω
IRIS
VR001 50KA
R008 10K
TINT
VR002 30KB
R007 1K
R009 10K
SW009 EVQQSU04W
PUSH-AF
TO PROCE
NOTE: DO N
ORDE

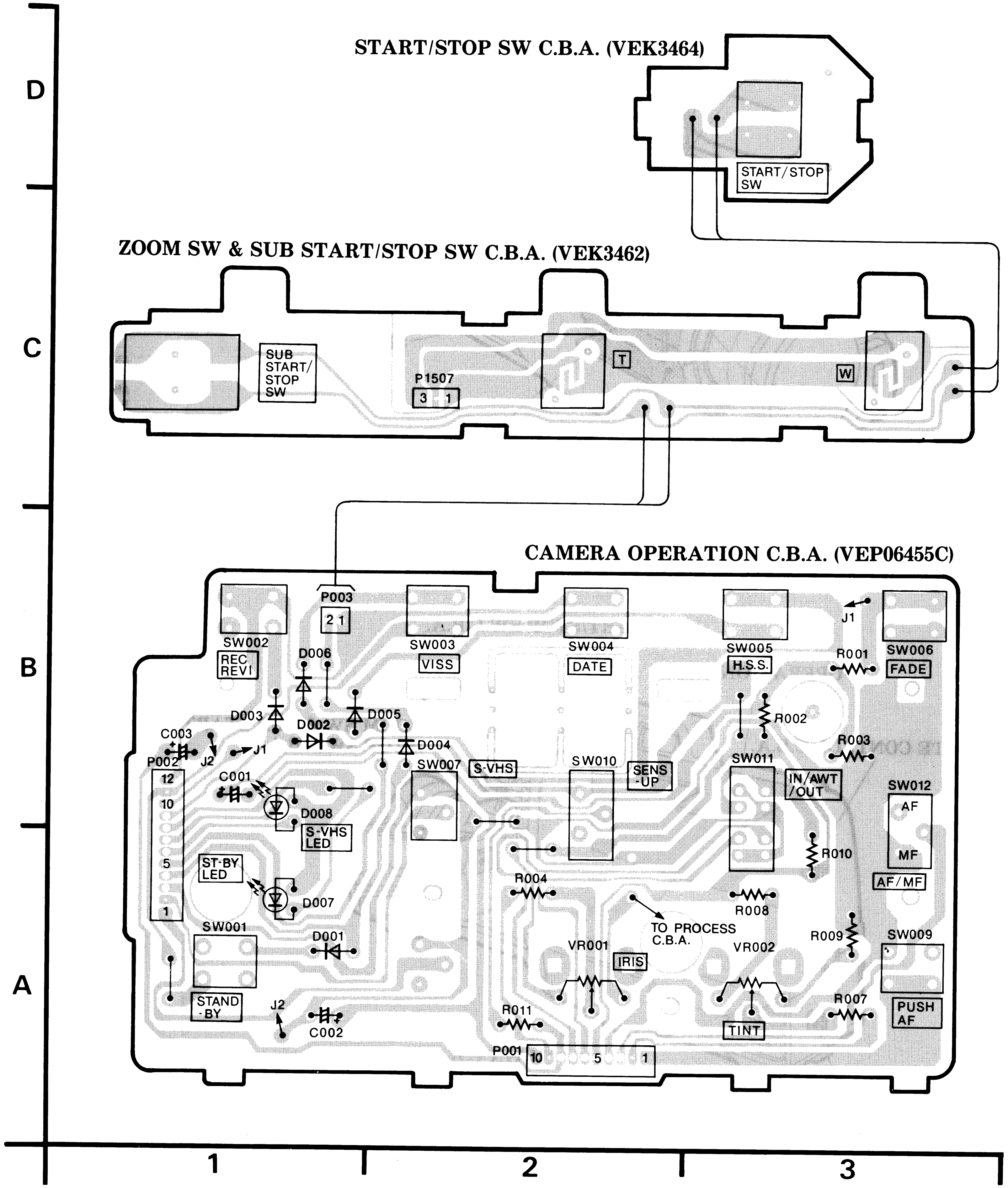
ATIC DIAGRAM


SUB START/ STOP SW
(2)
(1)
TELE
WIDE
P1507
WIDE 3 BA304-1
COMMON 2 BA304-3
TELE 1 BA304-2
ZOOM SW C.B.A. (VEK3462)
START/STOP
START/STOP SW C.B.A.
(VEK3464)
S-VHS
SW007
VSS0126
S-VHS
VHS
D006 MA165
D005 MA165
D002 MA165
C001 6.3V 100µ
R002 56K
R001 6.8K
C002 6.3V 100µ
R003 56K
2
VI
SW003 VISS
SW004 DATE
SW005 H.S.S.
SW006 FADE
SW001~006
EVQQSU04W
STAND-BY
SW001
STAND-BY LED
D007 BR3668S
D008 LN38GCPPS VT
S-VHS LED
R010
K
SW012
VSS0126
AF/MF
AF
MF
SW011
VSS0170
P001 (TO PROCESS)
1 PUSH AF BA306-3
2 TINT BA306-4
3 AF/MF BA306-2
4 GND BA306-6
5 5V BA306-7
6 AWT Ⓗ BA306-8
7 OUTDOOR Ⓗ BA306-9
8 SENS UP BA306-1
9 IRIS BA306-5
10 FADE BA306-10
R008 10K
VR002
30KB
R009 10K
SW009
EVQQSU04W
PUSH-AF
TO PROCESS
1 1.1V
2 ——

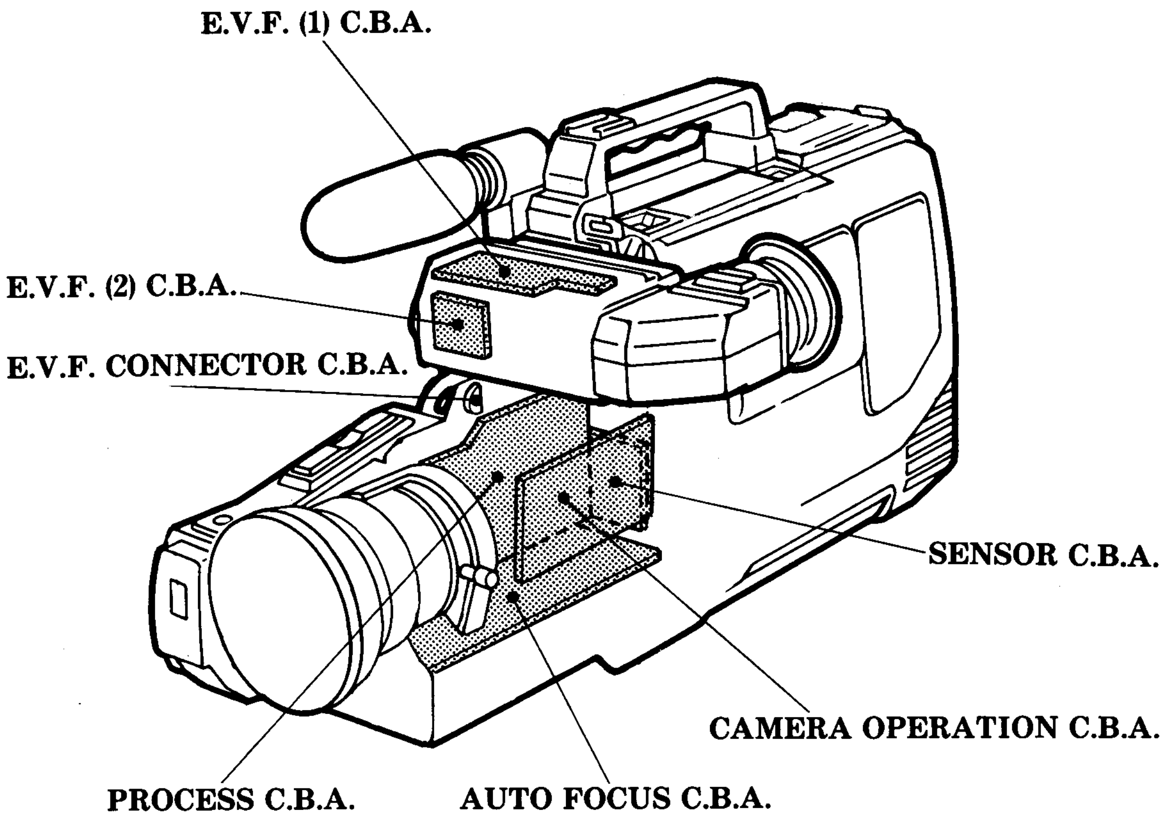
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

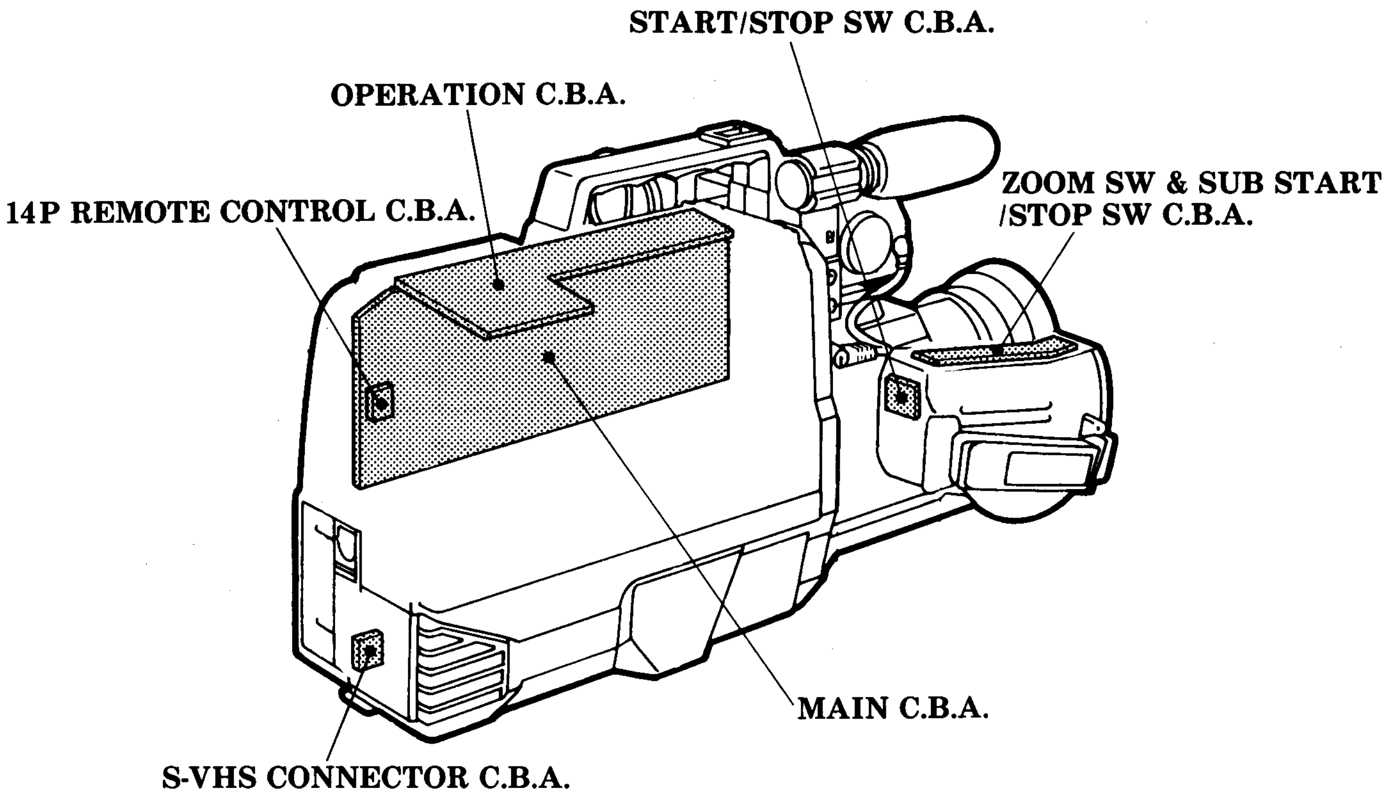
3
4
5

3-23. CAMERA OPERATION C.B.A. (VEP06455C)


D
C
B
A
START/STOP SW C.B.A. (VEK3464)
START/STOP SW
ZOOM SW & SUB START/STOP SW C.B.A. (VEK3462)
SUB START/ STOP SW
P1507
3 1
T
W
CAMERA OPERATION C.B.A. (VEP06455C)
P003
2 1
SW002
REC REVI
D006
SW003
VISS
SW004
DATE
SW005
H.S.S.
J1
R001
SW006
FADE
D003
D005
D002
D004
C003
J2
J1
SW007
S-VHS
SW010
SENS -UP
SW011
IN/AWT /OUT
R002
R003
SW012
AF
MF
AF/MF
P002
12
10
5
1
C001
D008
S-VHS LED
ST-BY LED
D007
R004
R010
R008
TO PROCESS C.B.A.
SW001
D001
VR001
IRIS
VR002
R009
SW009
STAND -BY
J2
C002
R011
P001
10
5
1
TINT
R007
PUSH AF
1
2
3

3-24. CIRCUIT BOARD LAYOUT

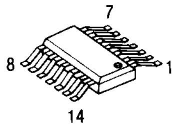

E.V.F. (1) C.B.A.
E.V.F. (2) C.B.A.
E.V.F. CONNECTOR C.B.A.
SENSOR C.B.A.
CAMERA OPERATION C.B.A.
PROCESS C.B.A.
AUTO FOCUS C.B.A.


START/STOP SW C.B.A.
OPERATION C.B.A.
14P REMOTE CONTROL C.B.A.
ZOOM SW & SUB START /STOP SW C.B.A.
MAIN C.B.A.
S-VHS CONNECTOR C.B.A.

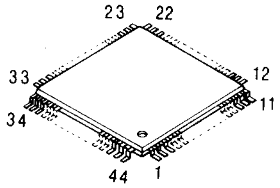
Back Page:
SUB VIDEO &
CAMERA OPERATION Section

3-25. ICs & TRs INFORMATION

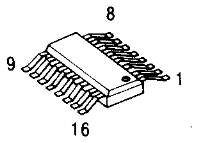
GENERAL CIRCUIT Section



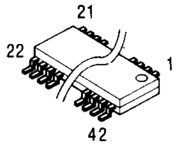
AN1324NS
S6700A
LM2902M
NJM2902M


23
22
33
12
34
11
44
1

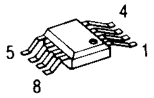
µPD9313GB
MN67461VDJF



MN4094S
MN4052BS
M52055

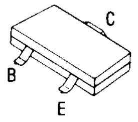


AN2583S
AN2153S



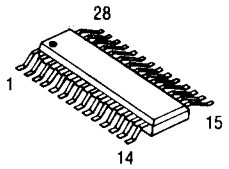
AN1358S
AN6914S
AN6562S
NJM2903M
NJM4558M

NJM3415M
RC3415M
RC4558M
µPD358G2
µPD1513G

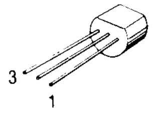


2SA812
2SA1255
2SA1532
2SA1610
2SB710
2SB779
2SB956
2SB970
2SB1218
2SB1219
2SB1220

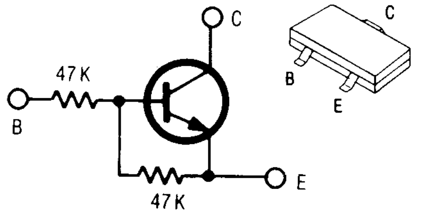
2SC2404
2SC3138
2SC3930
2SC3931
2SC3938
2SC4178
2SD601
2SD1328
2SD1819
2SD1820
2SD1823



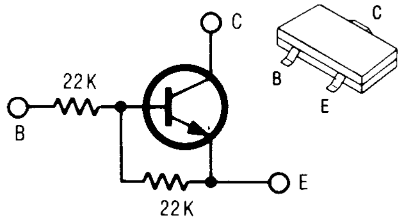
AN3798S
MN1551VTJS
AN3215S
BU3781F



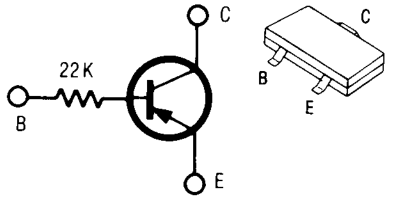
AN78N05


C
47K
B
47K
E
C
B
E

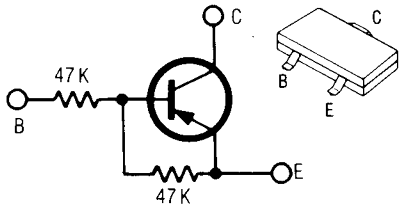
UN5213
UN2213
GA1L4M


C
22K
B
22K
E
C
B
E

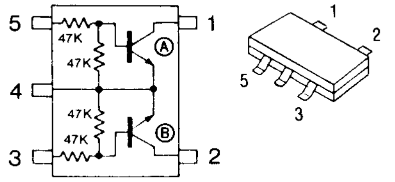
UN5212
GA1F4M



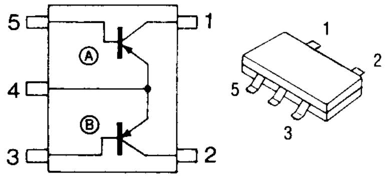
UN5117


C
47K
B
47K
E
C
B
E

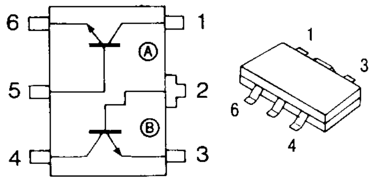
UN5113


5
47K
47K
Ⓐ
1
4
47K
47K
Ⓑ
3
2
1
2
5
3

XN1213

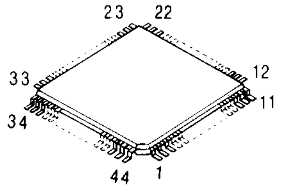


XN1401

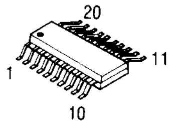

6
Ⓐ
1
5
2
Ⓑ
4
3
1
3
6
4

XN4501

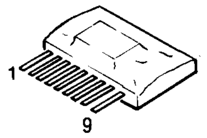
SENSOR Section


23
22
33
12
34
11
44
1

MN5103

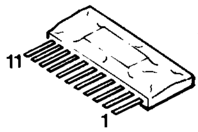


µPD6147G

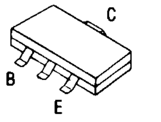


MC8088B

PROCESS, ENCOD

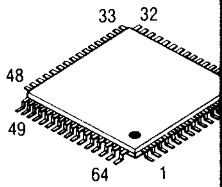


VCR0255



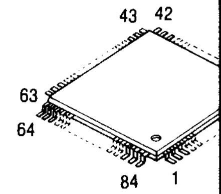
2SD874

AUTO FOCUS Sec

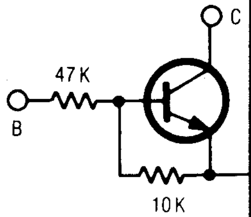

33
32
48
49
64
1

MN15865VPS

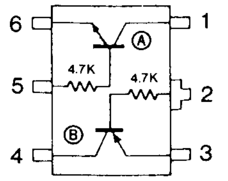
SYSTEM CONTRO


43
42
63
64
84
1

MN15361VNU

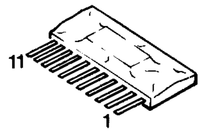


UN521E

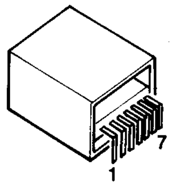

6
1
Ⓐ
5
4.7K
4.7K
2
Ⓑ
4
3

XN4316

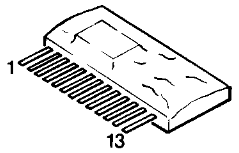
PROCESS, ENCODER Section



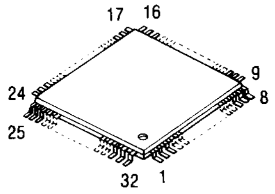
VCR0255



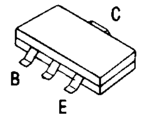
MC8181A



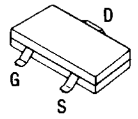
VCR0256


17 16
9
8
24
25
32 1

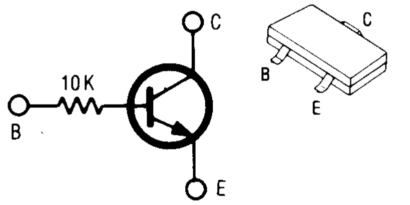
AN2253FA



2SD874

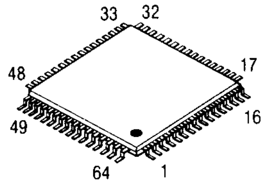


2SK316

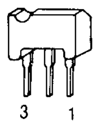


UN5215

AUTO FOCUS Section

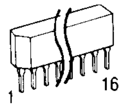

33 32
48
17
49
16
64 1

MN15865VPS

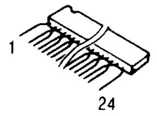


MN1280Q

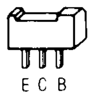
POWER SUPPLY Section



UN102

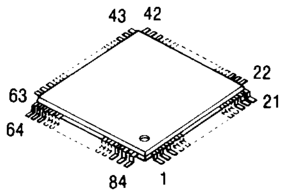


BA6149LS

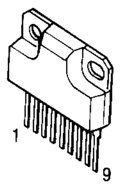


2SD1293M

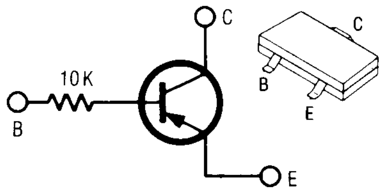
SYSTEM CONTROL Section


43 42
22
63
21
64
84 1

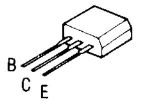
MN15361VNU



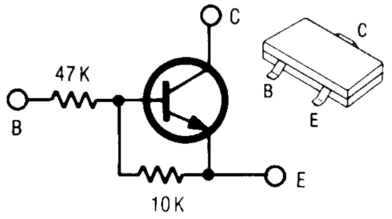
M54543L



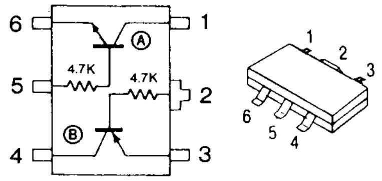
UN5115
GN1A4Z



2SA1175

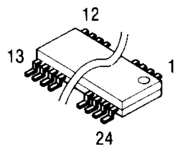

47K
B
C
E
10K
C
B
E

UN521E

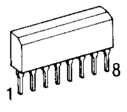

6
5
4
1
2
3
Ⓐ
Ⓑ
4.7K
4.7K
1
2
3
6
5
4

XN4316

AUDIO Section

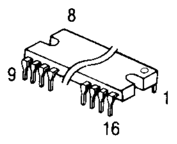


µPC2300G

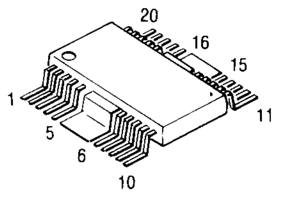


M5201L

SERVO Section

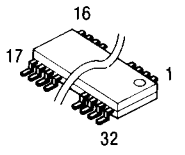


BA6430S

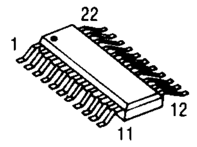

20
16
15
1
11
5
6
10

TA8402F

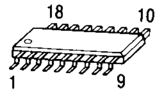
LUMINANCE & CHROMINANCE and HEAD AMP Section



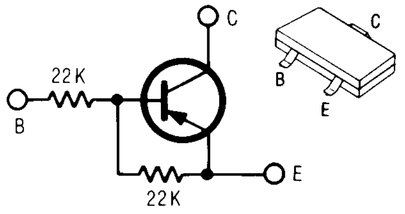
AN3321S



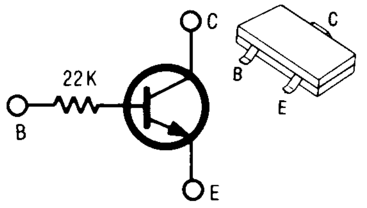
AN3311S
AN6367S



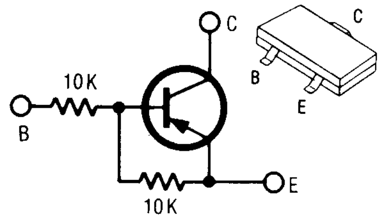
MN6163AS


22K
B
C
22K
E
C
B
E

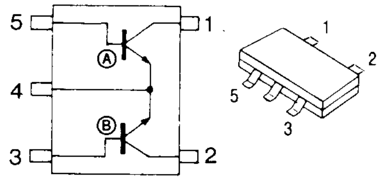
UN5112



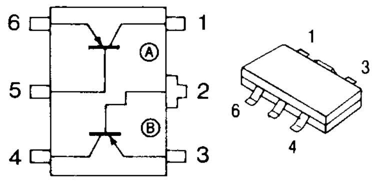
UN5217


10K
B
C
10K
E
C
B
E

UN5111



XN1501


6
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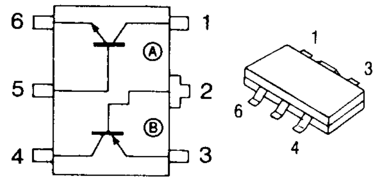
4
1
2
3
Ⓐ
Ⓑ
1
3
6
4

XN4401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2
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Ⓐ
Ⓑ
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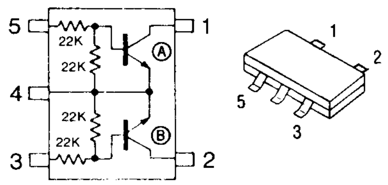
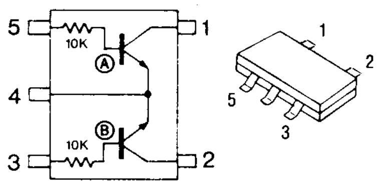
6
4

XN4601


5
4
3
1
2
22K
22K
22K
22K
Ⓐ
Ⓑ
1
2
5
3

XN1212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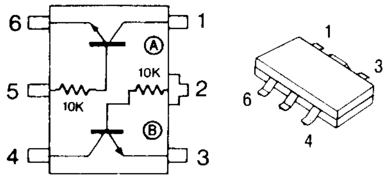
4
3
1
2
10K
10K
Ⓐ
Ⓑ
1
2
5
3

XN1215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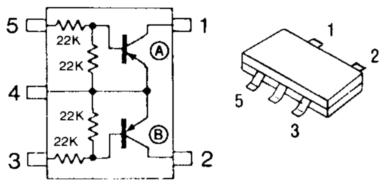
2
3
10K
10K
Ⓐ
Ⓑ
1
3
6
4

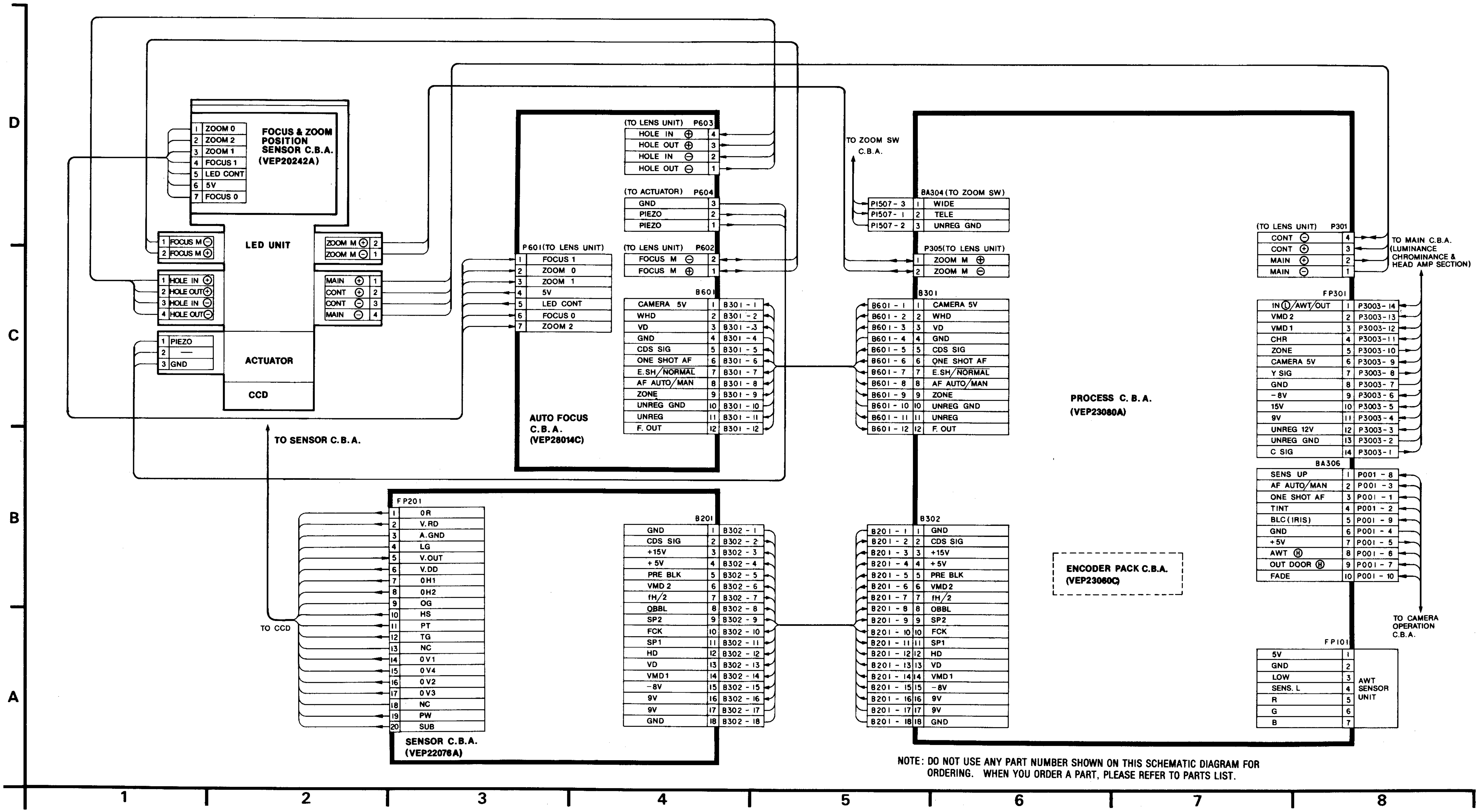
XN4215


5
4
3
1
2
22K
22K
22K
22K
Ⓐ
Ⓑ
1
2
5
3

XN1112

3-26. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM

3-27. V


D
C
B
A
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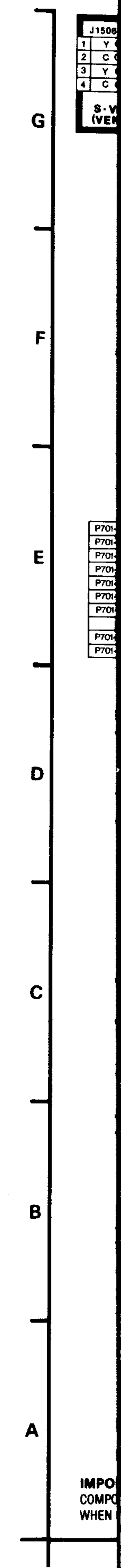
8
1 ZOOM 0
2 ZOOM 2
3 ZOOM 1
4 FOCUS 1
5 LED CONT
6 5V
7 FOCUS 0
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
LED UNIT
1 FOCUS M ⊖
2 FOCUS M ⊕
ZOOM M ⊕ 2
ZOOM M ⊖ 1
1 HOLE IN ⊕
2 HOLE OUT ⊕
3 HOLE IN ⊖
4 HOLE OUT ⊖
MAIN ⊕ 1
CONT ⊕ 2
CONT ⊖ 3
MAIN ⊖ 4
1 PIEZO
2 —
3 GND
ACTUATOR
CCD
TO SENSOR C.B.A.
(TO LENS UNIT) P603
HOLE IN ⊕ 4
HOLE OUT ⊕ 3
HOLE IN ⊖ 2
HOLE OUT ⊖ 1
(TO ACTUATOR) P604
GND 3
PIEZO 2
PIEZO 1
P601 (TO LENS UNIT)
1 FOCUS 1
2 ZOOM 0
3 ZOOM 1
4 5V
5 LED CONT
6 FOCUS 0
7 ZOOM 2
(TO LENS UNIT) P602
FOCUS M ⊖ 2
FOCUS M ⊕ 1
B601
CAMERA 5V 1 B301 - 1
WHD 2 B301 - 2
VD 3 B301 - 3
GND 4 B301 - 4
CDS SIG 5 B301 - 5
ONE SHOT AF 6 B301 - 6
E.SH/NORMAL 7 B301 - 7
AF AUTO/MAN 8 B301 - 8
ZONE 9 B301 - 9
UNREG GND 10 B301 - 10
UNREG 11 B301 - 11
F. OUT 12 B301 - 12
AUTO FOCUS C.B.A. (VEP28014C)
TO ZOOM SW C.B.A.
BA304 (TO ZOOM SW)
P1507 - 3 1 WIDE
P1507 - 1 2 TELE
P1507 - 2 3 UNREG GND
P305 (TO LENS UNIT)
1 ZOOM M ⊕
2 ZOOM M ⊖
B301
B601 - 1 1 CAMERA 5V
B601 - 2 2 WHD
B601 - 3 3 VD
B601 - 4 4 GND
B601 - 5 5 CDS SIG
B601 - 6 6 ONE SHOT AF
B601 - 7 7 E.SH/NORMAL
B601 - 8 8 AF AUTO/MAN
B601 - 9 9 ZONE
B601 - 10 10 UNREG GND
B601 - 11 11 UNREG
B601 - 12 12 F. OUT
PROCESS C. B. A. (VEP23080A)
ENCODER PACK C.B.A. (VEP23060C)
(TO LENS UNIT) P301
CONT ⊖ 4
CONT ⊕ 3
MAIN ⊕ 2
MAIN ⊖ 1
TO MAIN C.B.A. (LUMINANCE CHROMINANCE & HEAD AMP SECTION)
FP301
IN Ⓛ/AWT/OUT 1 P3003 - 14
VMD 2 2 P3003 - 13
VMD 1 3 P3003 - 12
CHR 4 P3003 - 11
ZONE 5 P3003 - 10
CAMERA 5V 6 P3003 - 9
Y SIG 7 P3003 - 8
GND 8 P3003 - 7
-8V 9 P3003 - 6
15V 10 P3003 - 5
9V 11 P3003 - 4
UNREG 12V 12 P3003 - 3
UNREG GND 13 P3003 - 2
C SIG 14 P3003 - 1
BA306
SENS UP 1 P001 - 8
AF AUTO/MAN 2 P001 - 3
ONE SHOT AF 3 P001 - 1
TINT 4 P001 - 2
BLC (IRIS) 5 P001 - 9
GND 6 P001 - 4
+5V 7 P001 - 5
AWT Ⓗ 8 P001 - 6
OUT DOOR Ⓗ 9 P001 - 7
FADE 10 P001 - 10
TO CAMERA OPERATION C.B.A.
FP101
5V 1
GND 2
LOW 3
SENS. L 4
R 5
G 6
B 7
AWT SENSOR UNIT
FP201
1 0R
2 V.RD
3 A.GND
4 LG
5 V.OUT
6 V.DD
7 0H1
8 0H2
9 OG
10 HS
11 PT
12 TG
13 NC
14 0V1
15 0V4
16 0V2
17 0V3
18 NC
19 PW
20 SUB
TO CCD
SENSOR C.B.A. (VEP22076A)
B201
GND 1 B302 - 1
CDS SIG 2 B302 - 2
+15V 3 B302 - 3
+5V 4 B302 - 4
PRE BLK 5 B302 - 5
VMD 2 6 B302 - 6
fH/2 7 B302 - 7
OBBL 8 B302 - 8
SP2 9 B302 - 9
FCK 10 B302 - 10
SP1 11 B302 - 11
HD 12 B302 - 12
VD 13 B302 - 13
VMD1 14 B302 - 14
-8V 15 B302 - 15
9V 16 B302 - 16
9V 17 B302 - 17
GND 18 B302 - 18
B302
B201 - 1 1 GND
B201 - 2 2 CDS SIG
B201 - 3 3 +15V
B201 - 4 4 +5V
B201 - 5 5 PRE BLK
B201 - 6 6 VMD2
B201 - 7 7 fH/2
B201 - 8 8 OBBL
B201 - 9 9 SP2
B201 - 10 10 FCK
B201 - 11 11 SP1
B201 - 12 12 HD
B201 - 13 13 VD
B201 - 14 14 VMD1
B201 - 15 15 -8V
B201 - 16 16 9V
B201 - 17 17 9V
B201 - 18 18 GND

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.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J1506
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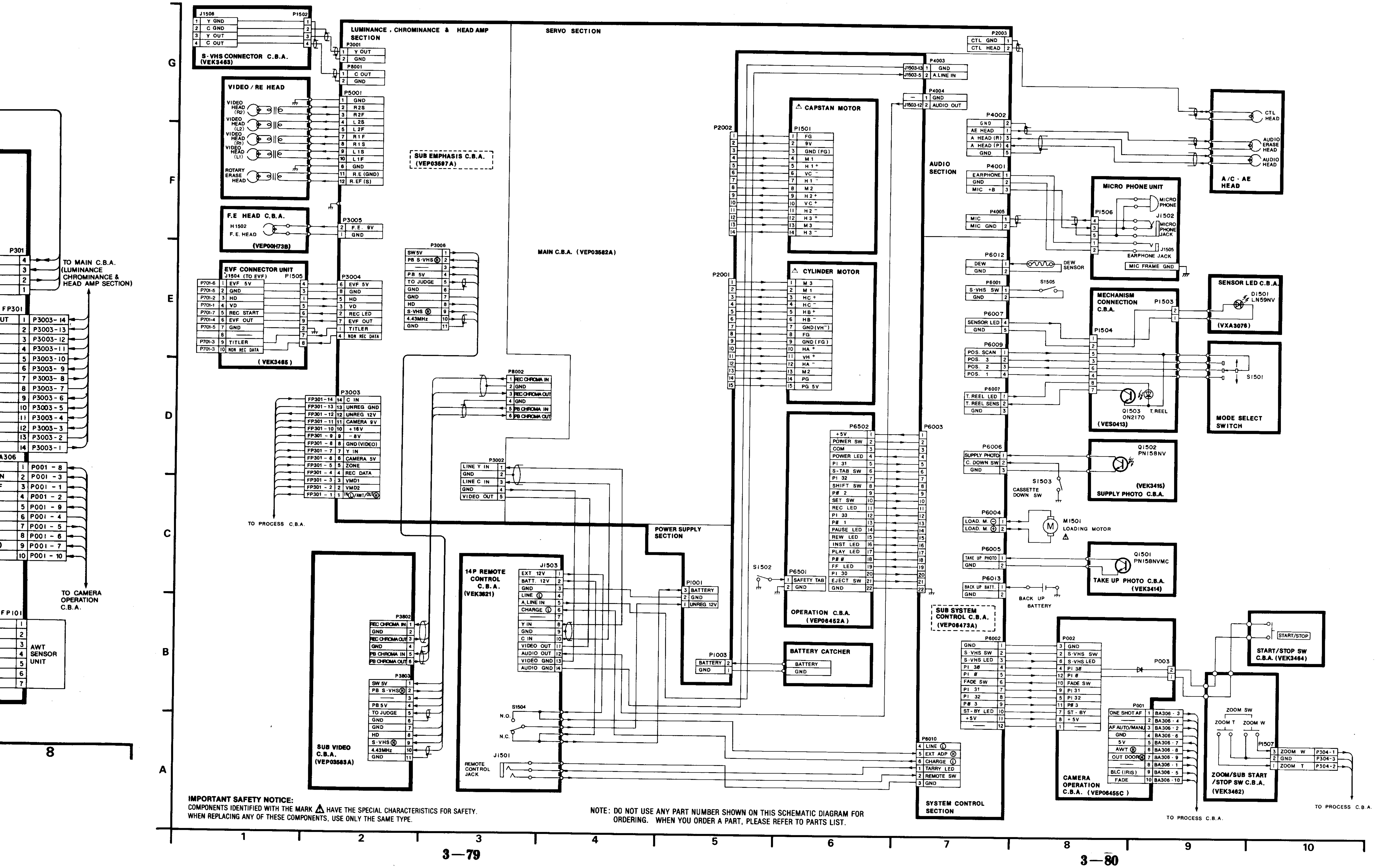
3-27. VTR INTERCONNECTION SCHEMATIC DIAGRAM


S-VHS CONNECTOR C.B.A. (VEK3463)
J1506
P1502
Y GND
C GND
Y OUT
C OUT
VIDEO / RE HEAD
VIDEO HEAD (R2)
VIDEO HEAD (L2)
VIDEO HEAD (R1)
VIDEO HEAD (L1)
ROTARY ERASE HEAD
F.E HEAD C.B.A. (VEP00H73B)
H1502 F.E. HEAD
EVF CONNECTOR UNIT (VEK3465)
J1504 (TO EVF)
P1505
EVF 5V
GND
HD
VD
REC START
EVF OUT
TITLER
NON REC DATA
LUMINANCE, CHROMINANCE & HEAD AMP SECTION
P3001
Y OUT
GND
P8001
C OUT
P5001
R2S
R2F
L2S
L2F
R1F
R1S
L1S
L1F
R.E (GND)
R.EF (S)
P3005
F.E. 9V
P3004
REC LED
P3003
C IN
UNREG GND
UNREG 12V
CAMERA 9V
+18V
-8V
GND (VIDEO)
Y IN
CAMERA 5V
ZONE
REC DATA
VMD1
VMD2
TO PROCESS C.B.A.
TO MAIN C.B.A. (LUMINANCE CHROMINANCE & HEAD AMP SECTION)
TO CAMERA OPERATION C.B.A.
AWT SENSOR UNIT
P301
FP301
FP101
A306
SUB EMPHASIS C.B.A. (VEP03597A)
P3006
SW 5V
PB S-VHS
PB 5V
TO JUDGE
S-VHS
4.43MHz
SERVO SECTION
MAIN C.B.A. (VEP03582A)
P8002
REC CHROMA IN
REC CHROMA OUT
PB CHROMA IN
PB CHROMA OUT
P3002
LINE Y IN
LINE C IN
VIDEO OUT
POWER SUPPLY SECTION
P1001
BATTERY
UNREG 12V
P1003
SUB VIDEO C.B.A. (VEP03583A)
P3802
P3803
14P REMOTE CONTROL C.B.A. (VEK3621)
J1503
EXT 12V
BATT. 12V
LINE
A.LINE IN
CHARGE
C IN
AUDIO OUT
VIDEO GND
AUDIO GND
S1504
N.O.
N.C.
J1501
REMOTE CONTROL JACK
CAPSTAN MOTOR
P1501
FG
9V
GND (FG)
M1
H1+
VC-
H1-
M2
H2+
VC+
H2-
H3+
M3
H3-
P2002
P2001
CYLINDER MOTOR
HC+
HC-
HB+
HB-
GND (VH-)
HA+
VH+
HA-
PG
PG 5V
OPERATION C.B.A. (VEP06452A)
P6502
P6501
+5V
POWER SW
COM
POWER LED
PI 31
S-TAB SW
PI 32
SHIFT SW
SET SW
REC LED
PI 33
PAUSE LED
REW LED
INST LED
PLAY LED
FF LED
PI 30
EJECT SW
SAFETY TAB
S1502
BATTERY CATCHER
AUDIO SECTION
P4003
P4004
A.LINE IN
P2003
CTL GND
CTL HEAD
P4002
AE HEAD
A HEAD (R)
A HEAD (P)
P4001
EARPHONE
MIC +B
P4005
MIC
MIC GND
P6012
DEW
DEW SENSOR
P6001
S-VHS SW
S1505
P6007
SENSOR LED
P6009
POS. SCAN
POS. 3
POS. 2
POS. 1
T. REEL LED
T. REEL SENS
P6006
SUPPLY PHOTO
C. DOWN SW
S1503
CASSETTE DOWN SW
P6004
LOAD. M.
M1501
LOADING MOTOR
P6005
TAKE UP PHOTO
P6013
BACK UP BATT.
BACK UP BATTERY
P6003
SUB SYSTEM CONTROL C.B.A. (VEP06473A)
P6002
S-VHS LED
PI 38
FADE SW
ST-BY LED
P6010
LINE
EXT ADP
CHARGE
TARRY LED
REMOTE SW
SYSTEM CONTROL SECTION
A/C · AE HEAD
CTL HEAD
AUDIO ERASE HEAD
AUDIO HEAD
MICRO PHONE UNIT
P1506
J1502
MICRO PHONE
MICRO PHONE JACK
J1505
EARPHONE JACK
MIC FRAME GND
SENSOR LED C.B.A. (VXA3076)
D1501 LN59NV
MECHANISM CONNECTION C.B.A. (VES0413)
P1503
P1504
Q1503 ON2170
T.REEL
MODE SELECT SWITCH
S1501
Q1502 PN158NV
SUPPLY PHOTO C.B.A. (VEK3415)
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
CAMERA OPERATION C.B.A. (VEP06455C)
P002
P001
P003
ONE SHOT AF
AF AUTO/MANU
AWT
OUT DOOR
BLC (IRIS)
FADE
START/STOP
START/STOP SW C.B.A. (VEK3464)
ZOOM SW
ZOOM T
ZOOM W
P1507
ZOOM/SUB START /STOP SW C.B.A. (VEK3462)
TO PROCESS C.B.A.
A
B
C
D
E
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G
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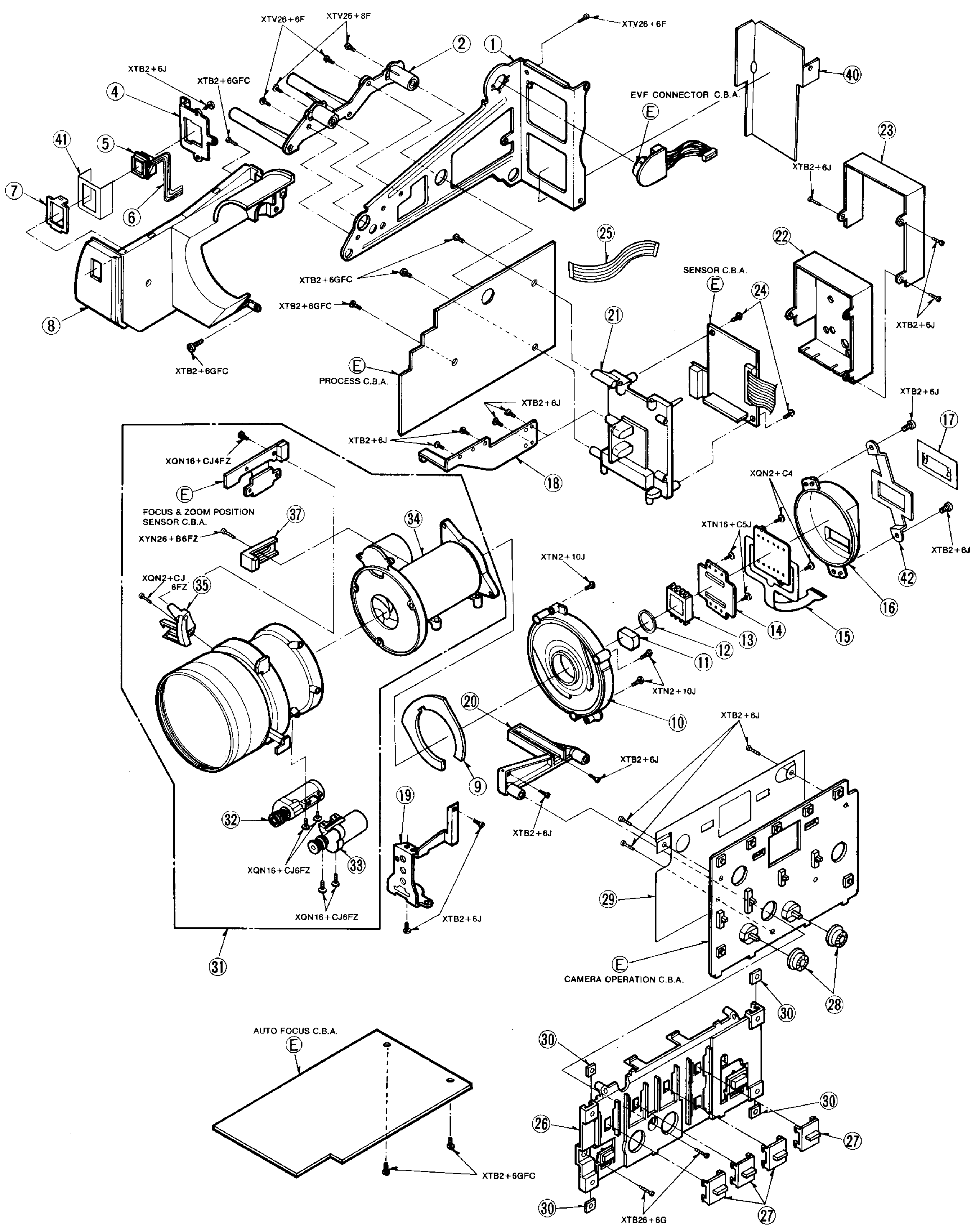
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW

❶ CAMERA LENS SECTION



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XTV26+6F
XTV26+8F
XTB2+6J
XTB2+6GFC
EVF CONNECTOR C.B.A.
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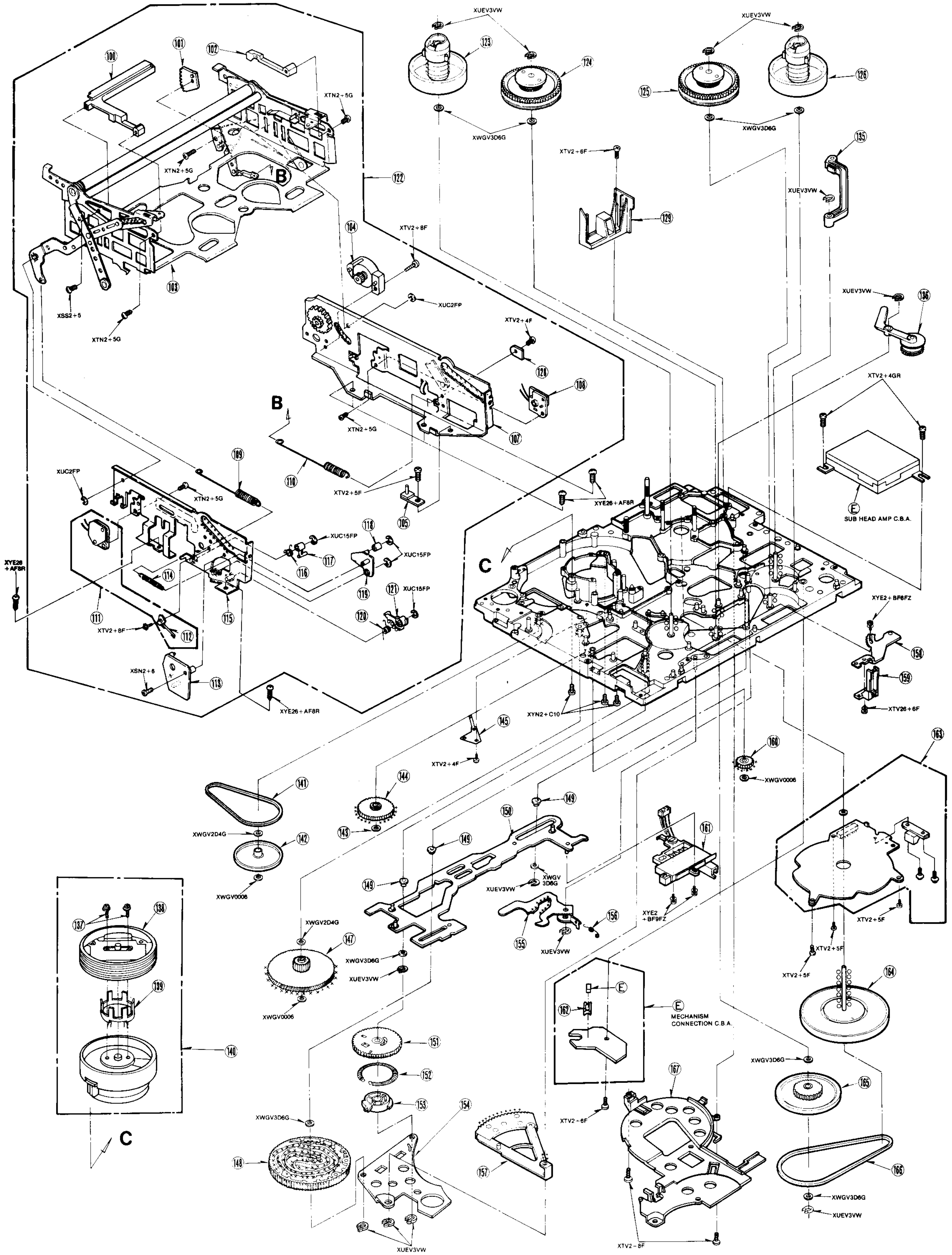
SENSOR C.B.A.
PROCESS C.B.A.
XQN16+CJ4FZ
FOCUS & ZOOM POSITION SENSOR C.B.A.
XYN26+B6FZ
XQN2+CJ 6FZ
XQN16+CJ6FZ
XQN2+C4
XTN16+C5J
XTN2+10J
CAMERA OPERATION C.B.A.
AUTO FOCUS C.B.A.
XTB26+6G

❷ VTR MECHANISM SECTION (1)



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B
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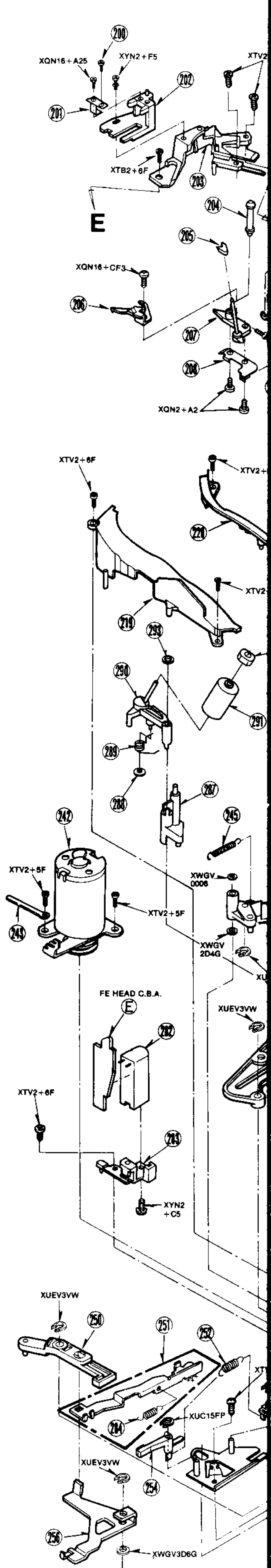
XUEV3VW
XWGV3D6G
XTN2+5G
XSS2+5
XTV2+8F
XTV2+6F
XTV2+4F
XTV2+5F
XTV2+4GR
XUC2FP
XUC15FP
XYE26+AF8R
XYE2+BF8FZ
XTV26+6F
XSN2+6
XYN2+C10
XWGV2D4G
XWGV0006
XYE2+BF8FZ
MECHANISM CONNECTION C.B.A.
SUB HEAD AMP C.B.A.

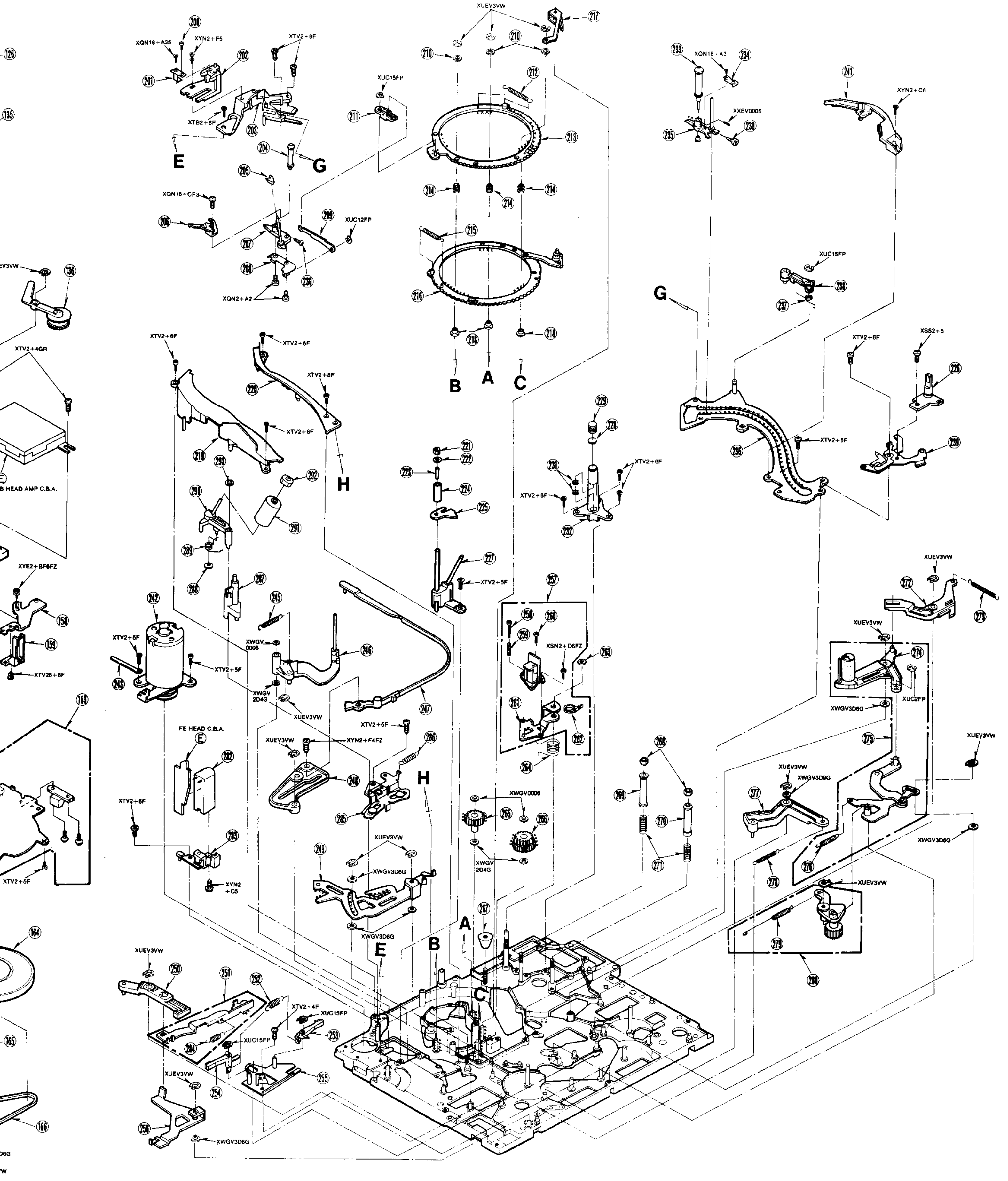
❸ VTR MECHAN



E
XQN16+A25
XYN2+F5
XTB2+6F
XQN16+CF3
XQN2+A2
XTV2+6F
XTV2+5F
FE HEAD C.B.A.
XUEV3VW
XUC15FP
XWGV3D6G
XYN2+C5

Back Page:
INTERCONNECTION Section

❸ VTR MECHANISM SECTION (2)



(126)
(135)
(136)
XUEV3VW
XTV2+4GR
B HEAD AMP C.B.A.
E
XYE2+BF6FZ
(154)
(159)
XTV26+6F
(163)
XTV2+5F
(164)
(165)
(166)
(200)
XQN16+A25
XYN2+F5
(201)
(202)
XTV2+6F
XTB2+6F
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E
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G
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XQN16+CF3
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XQN2+A2
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XUC12FP
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XUC15FP
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XUEV3VW
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XTV2+6F
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XTV2+8F
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XTV2+5F
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XTV2+6F
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XQN16+A3
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XXEV0005
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XYN2+C6
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XUC15FP
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(236)
XTV2+5F
XTV2+6F
XSS2+5
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(245)
(242)
XTV2+5F
(243)
XWGV 0006
(246)
XWGV 2D4G
XUEV3VW
(247)
FE HEAD C.B.A.
E
(282)
XTV2+6F
(283)
XYN2 +C5
XUEV3VW
XYN2+F4FZ
(248)
XTV2+5F
(286)
(285)
H
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XUEV3VW
XWGV3D6G
XWGV3D6G
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XTV2+4F
XUC15FP
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XUC15FP
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XUEV3VW
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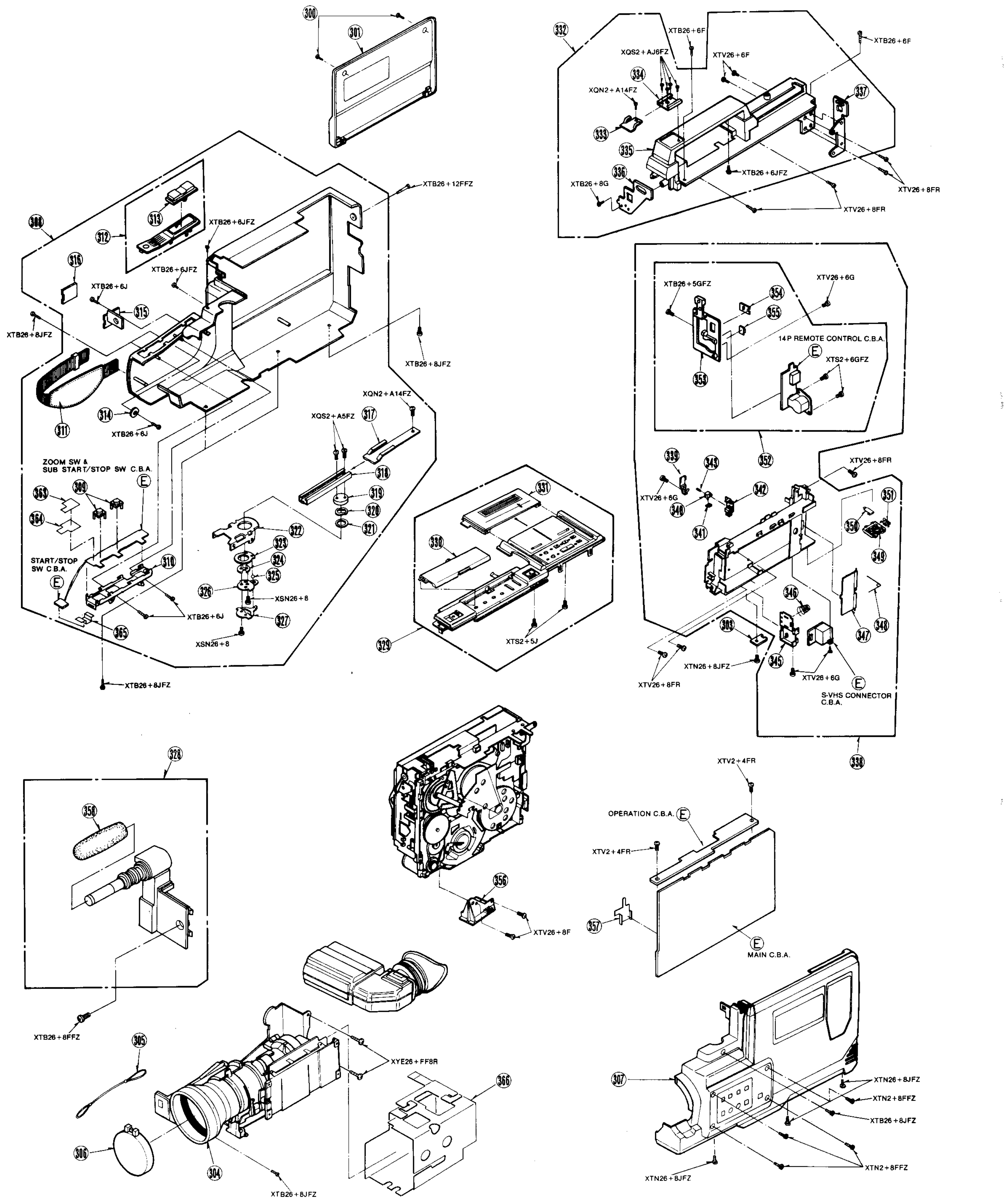
XWGV3D6G

❹ CHASSIS & FRAME SECTION



(300)
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XTB26+6F
XQS2+AJ6FZ
XTV26+6F
XTB26+6F
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XQN2+A14FZ
(337)
(333)
(335)
XTB26+6JFZ
(336)
XTB26+8G
XTV26+8FR
XTV26+8FR
XTB26+12FFZ
(308)
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XTB26+6JFZ
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XTB26+6JFZ
XTB26+6J
(315)
XTB26+8JFZ
XTB26+8JFZ
(311)
(314)
XTB26+6J
XQN2+A14FZ
XQS2+A5FZ
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ZOOM SW &
SUB START/STOP SW C.B.A.
E
(363)
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XSN26+8
(327)
XSN26+8
START/STOP SW C.B.A.
E
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XTB26+6J
(365)
XTB26+8JFZ
(331)
(330)
XTS2+5J
(329)
XTB26+5GFZ
(354)
(355)
XTV26+6G
14P REMOTE CONTROL C.B.A.
E
XTS2+6GFZ
(353)
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(343)
XTV26+6G
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(342)
XTV26+8FR
(351)
(350)
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(348)
XTV26+8FR
XTN26+8JFZ
XTV26+6G
E
S-VHS CONNECTOR C.B.A.
(338)
(328)
(358)
XTB26+8FFZ
(356)
XTV26+8F
XTV2+4FR
OPERATION C.B.A.
E
XTV2+4FR
(357)
E
MAIN C.B.A.
(305)
XYE26+FF8R
(366)
(306)
(304)
XTB26+8JFZ
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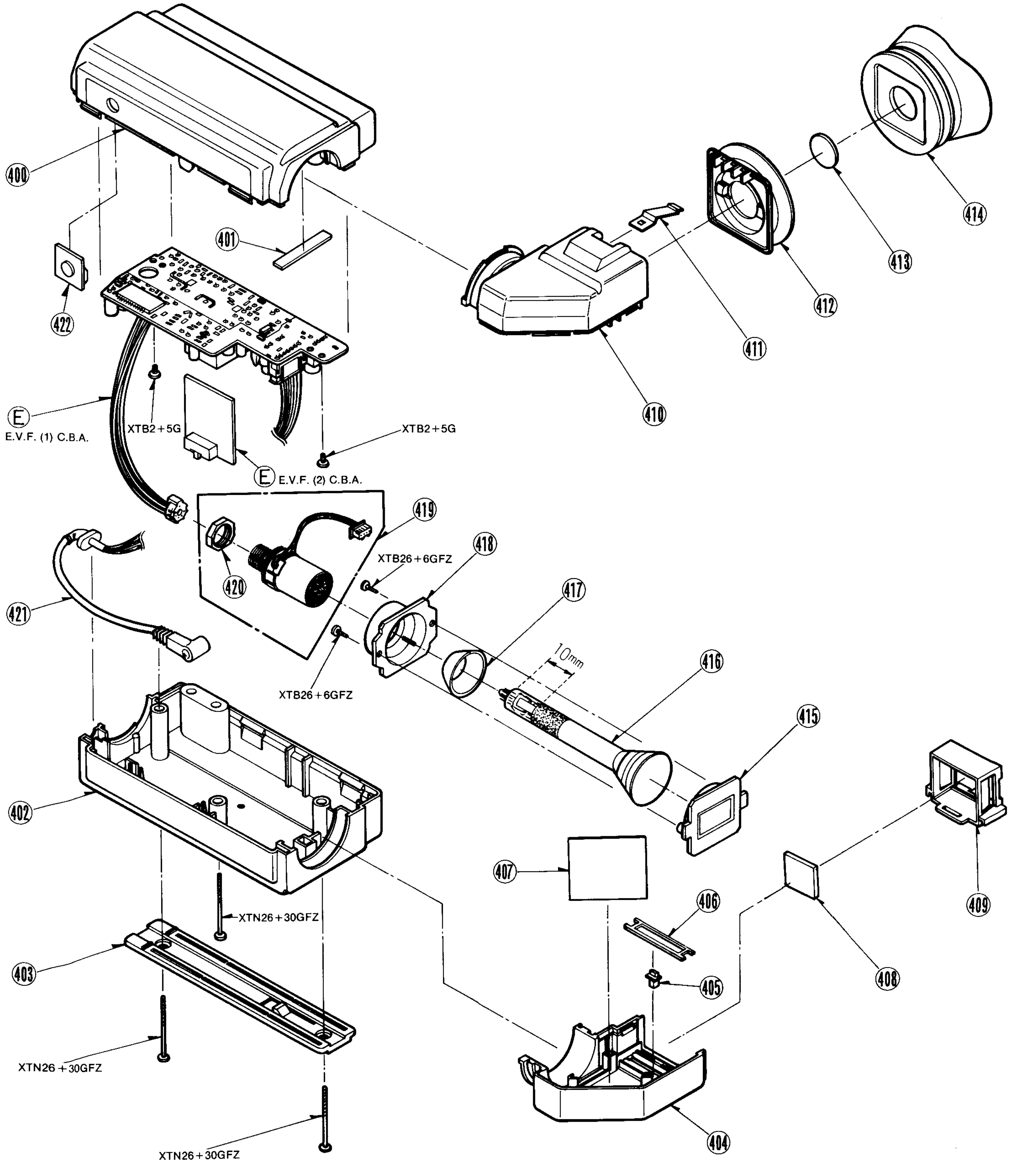
XTN26+8JFZ
XTN2+8FFZ
XTB26+8JFZ
XTN2+8FFZ
XTN26+8JFZ

❺ E.V.F. SECTION


400
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E.V.F. (1) C.B.A.
XTB2+5G
XTB2+5G
Ⓔ E.V.F. (2) C.B.A.
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XTB26+6GFZ
XTB26+6GFZ
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421
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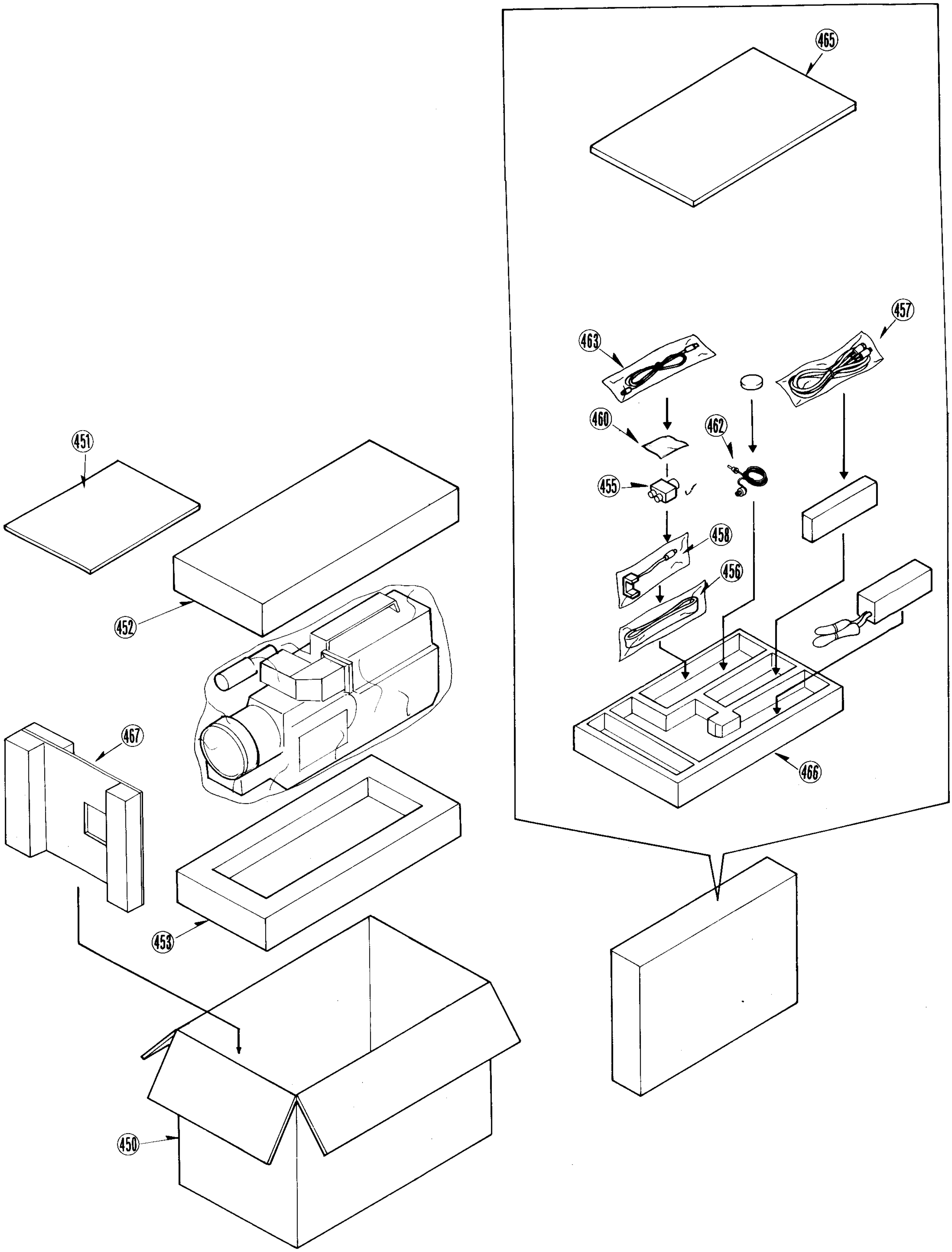
XTN26+30GFZ
XTN26+30GFZ
XTN26+30GFZ
404

❻ PACKING PARTS & ACCESSORIES SECTION (NV-MS1EG)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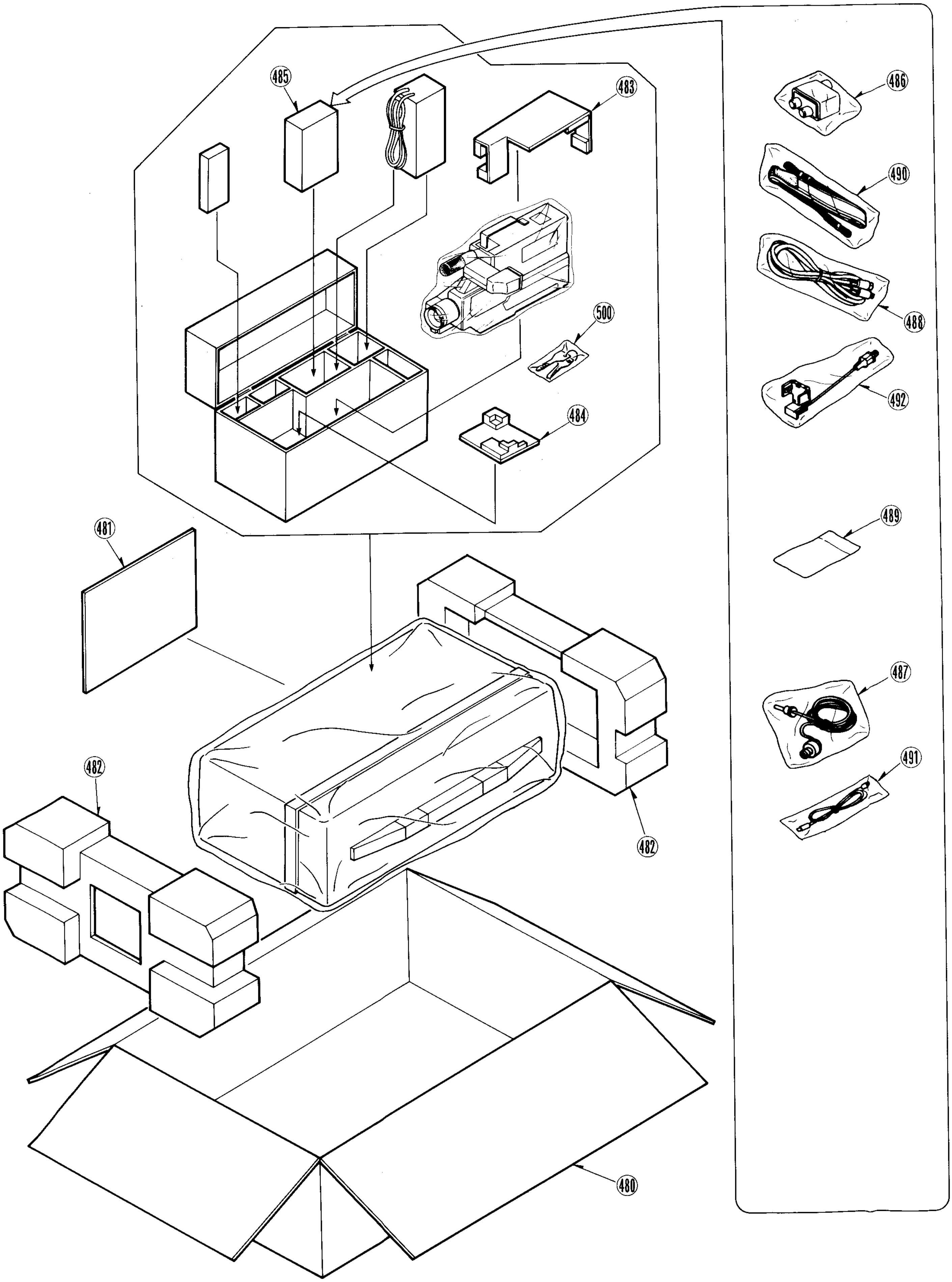
❼ PACKING PARTS & ACCESSORIES SECTION (NV-MS1B)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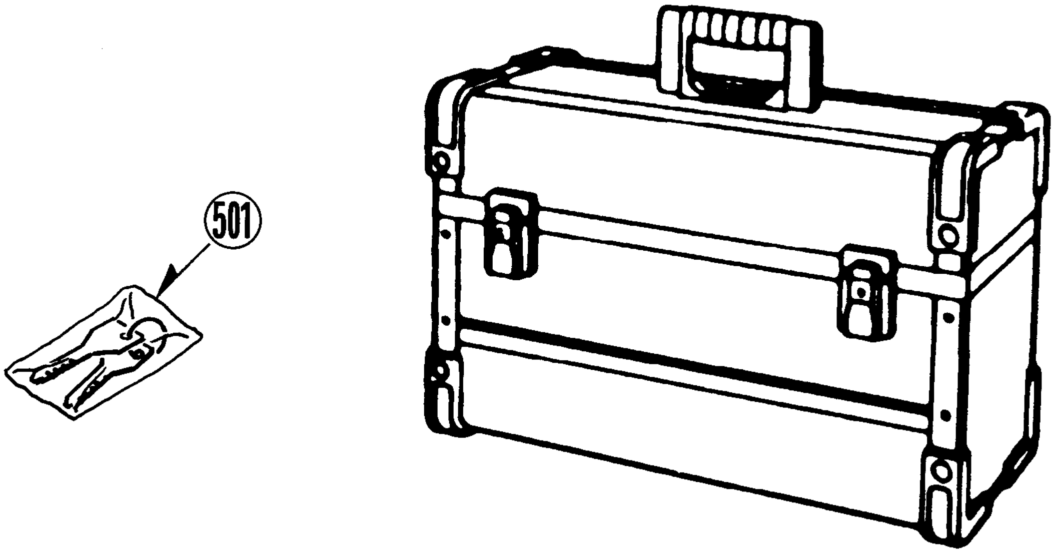
❽ SYSTEM CARRYING CASE (VW-SHS1)



ORDER NO. VRD8807M155
(Date of issue: JUL, 1988)

PARTS LIST

MODEL NO: NV-MS1B/EG

1. NV-MS1B/EG Mechanical Replacement Parts List

※ This parts list is detachable from the manual.

Note:1.* Be sure to make your orders of replacement parts according to this list.
2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VMP1338	CAMERA ANGLE	1	
2(1)		VGQ1348	CAMERA ANGLE BOSS	1	
4(1)		VMP1607	AWT SENSOR ANGLE	1	
5(1)		VEK3435	AWT SENSOR	1	
6(1)		VWJ0293	AWT FLEXIBLE CABLE	1	
7(1)		VMP1105	AWT SENSOR HOOK	1	
8(1)		VKM1581	AWT SENSOR CASE	1	
9(1)		VMA7089	ACTUATER PLATE	1	
10(1)		VXQ0031	ACTUATER UNIT	1	
11(1)		VDL0173	CRYSTAL FILTER	1	
12(1)		VMX1274	CCD CUSION	1	
13(1)		MN3761F	CCD	1	
14(1)		VMA7183	CCD PLATE	1	
15(1)		VWJ0290	CCD FLEXIBLE CABLE	1	
16(1)		VJF0507	SENSOR FLAME	1	
17(1)		VMC0358	FLAME EARTH SPRING	1	
18(1)		VMP1337	LENS ANGLE (A)	1	
19(1)		VMP1346	LENS ANGLE (B)	1	
20(1)		VJF0505	CAMERA OPERATION PANEL	1	
			ANGLE		
21(1)		VMD1118	SENSOR C.B.A. FLAME	1	
22(1)		VXA3573	SENSOR SHIELD CASE UNIT	1	
23(1)		VSC2329	SENSOR SHIELD HOLDER	1	
24(1)		VHD0398	SENSOR SETTING SCREW	2	
25(1)		VWJ0285	CAMERA-VTR FLEXIBLE CABLE	1	
26(1)		VGP1692	CAMERA OPERATION PANEL	1	
27(1)		VGU3896	SLIDE KNOB	4	
28(1)		VGU3898	VR KNOB	2	
29(1)		VMZ1113	CAMERA OPERATION BARRIER	1	
30(1)		VHN0057	CASE SETTING ANGLE (A)	4	
31(1)		VXW0016	LENS UNIT	1	
32(1)		VEM0309	FOCUS MOTOR UNIT	1	
33(1)		VEM0310	ZOOM MOTOR UNIT	1	
34(1)		VXL1747	IRIS UNIT	1	
35(1)		VJF0378	ENCODER C.B. HOLDER	1	
37(1)		VMD0933	BACK ADJUSTMENT	1	
40(1)		VSC2549	CAMERA HOLDER SHIELD	1	
			BARRIER		
41(1)		VGF0210	AWT SENSOR COVER	1	
42(1)		VMC0407	FRAME EARTH SPRING	1	
100(2)		VMD0954	CASSETTE GUIDE (L)	1	
101(2)		VDG0426	MAIN ARM GEAR (A)	1	
102(2)		VMD0953	CASSETTE GUIDE (R)	1	
103(2)		VXA3022	CASSETTE HOLDER UNIT	1	
104(2)		VMD1130	DAMPER UNIT	1	
105(2)		VES0418	CASSETTE DISCRIMINATION	1	
			SWITCH UNIT		
107(2)		VXA3024	STAND (R) UNIT	1	
108(2)		VEK3414	PHOTO HOLDER (R) UNIT	1	
109(2)		VMB1329	HOLDER SPRING (L)	1	
110(2)		VMB1621	HOLDER SPRING (R)	1	
111(2)		VEK3415	PHOTO HOLDER (L) UNIT	1	
112(2)		VSH0026	LEAF SW	1	
113(2)		VMD0952	LEAF SW COVER (O)	1	
114(2)		VMB1330	LOCK BOARD SPRING	1	
115(2)		VXA3023	STAND (L) UNIT	1	
116(2)		VMB1453	LOCK LEVER (B) SPRING	1	
117(2)		VML1650	LOCK LEVER (B)	1	
118(2)		VDP1096	LOCK ROLLER (O)	1	
119(2)		VXL1648	LOCK BOARD UNIT	1	
120(2)		VMB1331	LOCK LEVER (A) SPRING	1	
121(2)		VML1649	LOCK LEVER (A)	1	
122(2)		VXA3021	CASSETTE UP (4) UNIT	1	
123(2)		VXR0128	SUPPLY REEL TABLE	1	
124(2)		VXP0900	SUPPLY CLUTCH UNIT	1	
125(2)		VXP0901	TAKE-UP CLUTCH UNIT	1	
126(2)		VXR0171	TAKE-UP REEL TABLE	1	
128(2)		VSQ0493	DEW SENSOR UNIT	1	
129(2)		VGQ0888	CASSETTE OPENER	1	
135(2)		VXZ0246	SOFT BRAKE (T) UNIT	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
136(2)		VXP0899	DRIVE GEAR ARM UNIT	1	
137(2)		VHD0288	CYLINDER UNIT SCREW	2	
138(2)		VEH0422	UPPER CYLINDER UNIT	1	
139(2)		VJR0347	RT TERMINAL	1	
140(2)		VEG0674	CYLINDER UNIT	1	
141(2)		VDV0167	LOADING BELT	1	
142(2)		VDG0370	INTERMEDIATE PULLEY GEAR	1	
143(2)		VMX0653	CUT WASHER	1	
144(2)		VDG0372	DRIVE GEAR (B)	1	
145(2)		VXS0076	EARTH HOLDER UNIT	1	
147(2)		VDG0371	DRIVE GEAR (A)	1	
148(2)		VDG0202	CAM GEAR	1	
149(2)		VMX0388	THRUST WASHER	3	
150(2)		VXL1654	MAIN ROD (K) UNIT	1	
151(2)		VDG0211	LOADING GEAR (C)(2)	1	
152(2)		VMB1324	LOADING GEAR (C) SPRING	1	
153(2)		VDG0210	LOADING GEAR (C)(1)	1	
154(2)		VMA7228	GUARD PLATE	1	
155(2)		VML1707	DRIVE ARMKICK LEVER	1	
156(2)		VMB1388	DRIVE ARMKICK LEVER SPRING	1	
157(2)		VXP0632	SECTOR GEAR UNIT	1	
158(2)		VMA6560	SAFETY TAB SW BASE	1	
159(2)		VSH0023	SAFETY TAB SW	1	
160(2)		VDG0207	DRIVE GEAR (C)	1	
161(2)		VSS0193	MODE SELECT SW	1	
162(2)		VMX1280	SENSOR SPACER	1	
163(2)		VEK3398	STATOR UNIT	1	
164(2)		VXP0634	ROTOR UNIT	1	
165(2)		VXP0897	MAIN PULLEY UNIT	1	
166(2)		VDV0155	CAPSTAN BELT	1	
167(2)		VMD0935	BELT COVER	1	
200(3)		VHD0282	P2 ADJUST PLATE SCREW	1	
201(3)		VMA6542	P2 ADJUST PLATE	1	
202(3)		VMD0701	SUPPLY POST STOPPER	1	
203(3)		VMD1144	V STOPPER BASE	1	
204(3)		VXP0841	SUPPLY ROLLER POST UNIT	1	
205(3)		VGQ0842	P2 CAP	1	
206(3)		VMD0769	TAPE PROTECTOR	1	
207(3)		VXA2221	SUPPLY SHAFT HOLDER(1)UNIT	1	
208(3)		VXA2256	SUPPLY SHAFT HOLDER ANGLE	1	
			UNIT		
209(3)		VMM0144	CONNECTION ROD	1	
210(3)		VMX1282	RING GUIDE SLEEVE UNIT	3	
211(3)		VXA2231	CONNECTION TIE UNIT	1	
212(3)		VMB1319	LOADING SPRING	1	
213(3)		VXA2253	LOADING RING (S)(1) UNIT	1	
214(3)		VDP1160	RING GUIDE ROLLER	3	
215(3)		VMB1319	LOADING SPRING	1	
216(3)		VXA3576	LOADING RING (T)(O) UNIT	1	
217(3)		VMC0250	PRESSER SPRING	1	
218(3)		VMX1279	RING GUIDE SLEEVE	3	
219(3)		VMD1155	LOADING GUIDE (S)(1)	1	
220(3)		VMD1128	LOADING GUIDE (S)(2)	1	
221(3)		VMX1088	SUPPLY UPPER LIMITER	1	
222(3)		VMS2888	P1 SLEEVE (B)	1	
223(3)		VMX0876	P1 COLLAR	1	
224(3)		VDP1265	P1 ROLLER	1	
225(3)		VMA6547	P1 LIMITER PLATE	1	
226(3)		VXA3076	SENSOR LED(2) UNIT	1	
227(3)		VXA3112	P1 BASE (1) UNIT	1	
228(3)		VXD0098	THRUST SPACER	1	
229(3)		VHD0204	THRUST SCREW NUT	1	
230(3)		VHD0368	ROLLER POST SCREW	2	
231(3)		VMX0775	DUST SEAL	2	
232(3)		VXD0106	CAPSTAN HOUSING UNIT	1	
233(3)		VXP0927	ROLLER POST UNIT	1	
234(3)		VMA6546	TAKE-UP SHAFT HOLDER ANGLE	1	
235(3)		VXA2360	TAKE-UP SHAFT HOLDER (A)	1	
			UNIT		
236(3)		VXA2257	LOADING GUIDE(T) UNIT	1	
237(3)		VMB1393	PRESSURE LEVER SPRING	1	
238(3)		VXL1327	PRESSURE LEVER UNIT	1	
239(3)		VXA2540	SENSOR LED(1) UNIT	1	
241(3)		VMD0713	TAPE COVER(A)	1	
242(3)		VEM0288	LOADING MOTOR UNIT	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
243(3)		VJF0444	CLAMPER	1	
245(3)		VMB1747	TENSION SPRING	1	
246(3)		VXL1262	TENSION ARM UNIT	1	
247(3)		VXZ0245	TENSION BAND UNIT	1	
248(3)		VML2065	BAND RELEASE ARM	1	
249(3)		VML1631	TENSION KICK LEVER	1	
250(3)		VML2064	EJECT LEVER (A)	1	
251(3)		VXA3020	SUPPORTER UNIT	1	
252(3)		VMB1405	BRAKE SPRING	1	
253(3)		VXZ0207	BRAKE (R) UNIT	1	
254(3)		VXZ0206	BRAKE (L) UNIT	1	
255(3)		VXA2392	BRAKE PLATE (1) UNIT	1	
256(3)		VML2073	EJECT LEVER (B)	1	
257(3)		VED0041	A/C HEAD UNIT	1	
258(3)		VHD0275	A/C HEAD ADJUST SCREW	1	
259(3)		VMB1321	A/C HEAD ADJUST SPRING	1	
260(3)		VHD0381	A/C HEAD TILT ADJUST SCREW	1	
261(3)		VML1637	A/C HEAD ARM	1	
262(3)		VJF0300	A/C HEAD BINDER	1	
263(3)		VHN0077	A/C HEAD ARM NUT	1	
264(3)		VMB1320	A/C HEAD SPRING	1	
265(3)		VDG0208	LOADING GEAR (A)	1	
266(3)		VDG0461	LOADING GEAR (B)	1	
267(3)		VHN0072	ADJUST NUT	1	
268(3)		VHN0047	M2 NYLON NUT	2	
269(3)		VMS2693	P4 POST SLEEVE	1	
270(3)		VXJ0057	P5 POST SLEEVE	1	
271(3)		VMB1322	P4,P5 SPRING	2	
272(3)		VML2067	PINCH LEVER	1	
273(3)		VMB1748	PINCH LEVER SPRING	1	
274(3)		VXL1652	PINCH ROLLER ARM(1)UNIT	1	
275(3)		VXL1650	PINCH ARM UNIT	1	
276(3)		VMB1326	PINCH ARM SPRING	1	
277(3)		VXL1264	SOFT BRAKE LEVER (S) UNIT	1	
278(3)		VMB1314	SOFT BRAKE SPRING (S)	1	
279(3)		VMB1473	REW ARM SPRING (A)	1	
280(3)		VXL1649	FF/REW ARM UNIT	1	
282(3)		VBS0021	FE HEAD	1	
283(3)		VMD1129	FE HEAD BASE	1	
284(3)		VMB1447	SUPPORTER SPRING	1	
285(3)		VXA3579	SLIDE BASE (O) UNIT	1	
286(3)		VMB1965	SLIDE SPRING	1	
287(3)		VML2285	IMPEDANCE LEVER	1	
288(3)		VHN0109	PUSH UNIT	1	
289(3)		VMB1964	IMPEDANCE DRIVE SPRING	1	
290(3)		VXL1879	IMPEDANCE ARM (1) UNIT	1	
291(3)		VDP1266	IMPEDANCE ROLLER	1	
292(3)		VMX1088	SUPPLY UPPER LIMITER	1	
293(3)		VMX0967	CUT WASHER	1	
300(4)		VHD0371	CASSETTE COVER SCREW	2	
301(4)		VYP2487	CASSETTE COVER UNIT	1	
303(4)		VKF0960	BATTERY LID	1	
304(4)		VDW0085	LENS HOOD	1	
305(4)		VGQ1350	HOOD STRAP	1	
306(4)		VKF0950	HOOD CAP	1	
307(4)		VYK2307	SIDE CASE(R) UNIT	1	
308(4)		VYK2308	SIDE CASE(L) UNIT	1	
309(4)		VMG0358	SWITCH RUBBER PIECE	2	
310(4)		VMP1382	ZOOM BUTTON ANGLE	1	
311(4)		VYC0286	GLIP BELTT	1	
312(4)		VXU0835	ZOOM BUTTON UNIT	1	
313(4)		VGU3903	ZOOM BUTTON	1	
314(4)		VMA6402	GRIP BELT ANGLE	1	
315(4)		VXU0836	START/STOP BUTTON UNIT	1	
316(4)		VGQ1351	GRIP SHEET	1	
317(4)		VMC0257	EVF SHOE SPRING	1	
318(4)		VMP1073	EVF SHOE	1	
319(4)		VMP1072	EVF ROTATION STAND	1	
320(4)		WW-12	WAVING WASHER	1	
321(4)		VMX1123	EVF ROTATION SPACER	1	
322(4)		VMP1341	EVF ANGLE	1	
323(4)		VGQ1213	EVF ROTATION PIECE(A)	1	
324(4)		VGQ1214	EVF ROTATION PIECE(B)	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
325(4)		VDB0876	EVF CLICK BELL	1	
326(4)		VMC0277	EVF CLICK SPRING (A)	1	
327(4)		VMC0278	EVF CLICK SPRING (B)	1	
328(4)		VEK3965	MIC UNIT	1	
329(4)		VXU0861	OPERATION PANEL UNIT	1	
330(4)		VKF1147	RESET/MEMORY DOOR	1	
331(4)		VKF1070	CURSOR	1	
332(4)		VXK0847	TOP PANEL UNIT	1	
333(4)		VMC0241	SHOE SPRING	1	
334(4)		VMP1079	SHOE	1	
335(4)		VKM1058	HANDLE TOP CASE	1	
336(4)		VMP1342	SHOULDER BELT ANGLE(FRONT)	1	
337(4)		VMP1343	SHOULDER BELT ANGLE(REAR)	1	
338(4)		VYK2311	BATTERY CASE UNIT	1	
339(4)		VMC0238	BATTERY STOPPER FIXING	1	
			ANGLE	1	
340(4)		VGQ1122	BATTERY STOPPER	1	
341(4)		VGQ1181	BATTERY STOPPER PIECE	1	
342(4)		VGU3906	BATTERY EJECT BUTTON	1	
343(4)		VMB1610	BATTERY EJECT SPRING	1	
345(4)		VGQ1129	BATTERY CATCHER	1	
346(4)		VMB1614	BATTERY STOPPER SPRING	1	
347(4)		VKF0831	BATTERY DOOR	1	
348(4)		VMC0356	BATTERY DOOR SPRING	1	
349(4)		VJF0539	BATTERY FIXING PIECE	1	
350(4)		VMC0326	ELECTRODE(-)	1	
351(4)		VJR0363	ELECTRODE(+)	1	
352(4)		VEJ0739	JACK PLATE UNIT	1	
353(4)		VKM1092	JACK PLATE CASE	1	
354(4)		VGH1386	JACK NAME PLATE	1	
355(4)		VGU3902	EDIT KNOB	1	
356(4)		VYQ0096	TRIPOD FIXING BRACKET UNIT	1	
357(4)		VSC2661	SHIELD CASE(LID)	1	
358(4)		VGQ1567	FOOD	1	
363(4)		VMZ1244	ZOOM C.B.A. BARRIER	1	
364(4)		VMX1351	ZOOM C.B.A. SPACER BARRIER	1	
365(4)		VMZ1248	START/STOP C.B.A. BARRIER	1	
366(4)		VSC2667	SHIELD BARRIER	1	
400(5)		VKM1582	EVF TOP COVER	1	
401(5)		VMC0317	EVF ROTATION SPRING	1	
402(5)		VKM1584	EVF BOTTOM COVER	1	
403(5)		VGQ1330	EVF FOOD	1	
404(5)		VKM1055	CRT BOTTOM CASE	1	
405(5)		VGU3895	EYESIGHT CORRECTION KNOB	1	
406(5)		VJF0502	KNOB PRESSURE SHEET	1	
407(5)		VDL0141	MIRROR	1	
408(5)		VDL0139	EYESIGHT CORRECTION LENS	1	
409(5)		VKF0947	LENNS HOLDER	1	
410(5)		VYF1054	CRT TOP CASE	1	
411(5)		VMC0316	EYE CAP HOLDER SPRING	1	
412(5)		VYF0946	EYE CAP HOLDER	1	
413(5)		VDL0140	EYE CAP LENS	1	
414(5)		VMG0411	EYE CAP	1	
415(5)		VJF0500	CRT MASKING	1	
416(5)		M02JVV48WB	CRT	1	
417(5)		VMX1004	CRT PROTECTOR RUBBER	1	
418(5)		VJF0501	CRT HOLDER	1	
419(5)		ELY07V552A	DEFLECTION YOKE	1	
420(5)		VHN0093	HOLDER RING	1	
421(5)		VEK3604	EVF CABLE UNIT	1	
422(5)		VGL0320	LED PANEL LIGHT	1	
450(6)		VPG4338	PACKING CASE	1	NV-MS1EG
451(6)		VQT2787	OPERATING INSTRUCTIONS	1	<!>NV-MS1EG(ENGLISH,
					GARMAN,FRENCH)
452(6)		VPN1960	CUSHION(UPPER)	1	NV-MS1EG
453(6)		VPN1961	CUSHION(LOWER)	1	NV-MS1EG
455(6)		VSQ0541	AV CONNECTOR	1	NV-MS1EG
456(6)		VFC0130	SHOULDER STRAP	1	NV-MS1EG
457(6)		VJA0453	4P CORD	1	NV-MS1EG
458(6)		VJA0180	RECHARGEABLE BATTERY	1	NV-MS1EG
			CATCHER		
460(6)		VFC0126	LENS CLEANER	1	NV-MS1EG
462(6)		VBE0006	EARPHONE	1	NV-MS1EG
463(6)		VJA0321	DIN CABLE	1	NV-MS1EG
465(6)		VPN2008	ACCESSORY CUSHION(TOP)	1	NV-MS1EG

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
466(6)		VPN2292	ACCESSORY CUSHION(BOTTOM)	1	NV-MS1EG
467(6)		VPN2224	PAD	1	NV-MS1EG
480(7)		VPG4337	PACKING CASE	1	NV-MS1B
481(7)		VQT2786	OPERATING INSTRUCTIONS	1	<!>NV-MS1B(ENGLISH)
482(7)		VPN2089	CUSHION	2	NV-MS1B
483(7)		VPN2309	PAD (D)	1	NV-MS1B
484(7)		VPN2240	PAD (B)	1	NV-MS1B
485(7)		VPK0940	ACCESSORY CASE	1	NV-MS1B
486(7)		VSQ0541	AV CONNECTOR	1	NV-MS1B
487(7)		VBE0006	EARPHONE	1	NV-MS1B
488(7)		VJA0453	4P CORD	1	NV-MS1B
489(7)		VFC0126	LENS CLEANER	1	NV-MS1B
490(7)		VFC0130	SHOULDER STRAP	1	NV-MS1B
491(7)		VJA0321	DIN CABLE	1	NV-MS1B
492(7)		VJA0180	RECHARGEABLE BATTERY	1	NV-MS1B
			CATCHER		
500(7)		VYQ0101	KEY	1	NV-MS1B
501(8)		VYQ0101	KEY	1	NV-MS1EG
			FIXTURES & TOOLS		
		VFK0380	18 PIN EXTENSION CABLE	1	
		VFK0430	FLEXIBLE EXTENSION CABLE	1	
		VFK0432	HOLDER SPACER (2 PCS.)	1	
		VFK0431	CAMERA HOLDER ARM	1	
		VFK0382	CAMERA HOLDER	1	
		VFJ8125H3F	VHS-ALIGNMENT TAPE(PAL)	1	
		VFK0335	RETAINING RING REMOVER	1	
			(3mm/4mm)		
		VFK0191	POST ADJUSTMENT PLATE	1	
		VFK0190	REEL TABLE HEIGHT GAUGE	1	
		VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
		VFK0326	HEX WRENCH SET	1	
		VFK0343	CHECK LIGHT	1	
		VFK27	HEAD CLEANING STICK	1	
		MOR265	MORLYTONE GREASE	1	
		VFK0330	FINE ADJUSTMENT SCREWDRIVER	1	
		VFK0134	ADAPTOR FOR VFK0133	1	
		VFK0133	DIAL TORQUE GAUGE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks

2. NV-MS1B/EG Electrical Replacement Parts List

Note:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.
3. Unless otherwise specified,
   All resistors are in OHMS ,K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf),P=uuF.
4. The P.C.Board units marked width'■'show below the main assembled parts.
5. Printed circuit board assembly with mark(NLA) is no longer available after discontinuation of the product.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CAMERA SECTION		
		VEP23080A	PROCESS C.B.A.	1	(NLA)
		VEP28014B	AUTO FOCUS C.B.A.	1	(NLA)
		VEP22076A	SENSOR C.B.A.	1	(NLA)
		VEP23060A	ENCODER C.B.A.	1	(NLA)
		VEP06455C	CAMERA OPERATION C.B.A.	1	(NLA)
		VEP20242A	FOCUS & ZOOM POSITION SENSOR C.B.A.	1	(NLA)
			E.V.F. SECTION		
		VEP27033E	EVF (1) C.B.A.	1	(NLA)
		VEP27037A	EVF (2) C.B.A.	1	(NLA)
			VTR SECTION		
		VEP03582A	MAIN C.B.A.	1	(NLA)
		VEP03583A	SUB VIDEO C.B.A.	1	(NLA)
		VEP03597A	SUB EMPHASIS C.B.A.	1	(NLA)
		VEP06452A	OPERATION C.B.A.	1	(NLA)
		VEK3463	S-VHS CONNECTOR C.B.A.	1	(NLA)
		VEK3464	START/STOP SW C.B.A.	1	(NLA)
		VEK3462	ZOOM & SUB START/STOP SW C.B.A.	1	(NLA)
		VEK3465	E.V.F. CONNECTOR C.B.A.	1	(NLA)
		VEP00H73B	FE HEAD C.B.A.	1	(NLA)
		VXA3076	SENSOR LED C.B.A.	1	(NLA)
		VEK3415	SUPPLY PHOTO C.B.A	1	(NLA)
		VEK3414	TAKE-UP PHOTO C.B.A	1	(NLA)
		VEK3621	14P REMOTE CONTROL C.B.A.	1	(NLA)
		VES0413	MECHANISM CONNECTION C.B.A.	1	(NLA)
	■	VEP23080A	PROCESS C.B.A.		
B301		VJS2227	CONNECTOR	1	
B302		VJS1948	CONNECTOR	1	
			CAPACITORS		
C101-03		ECEA0JKS470	E.CAPACITOR 6.3V 47U	3	
C104-06		ECUM1E473ZFN	CHIP 25V 0.047U	3	
C107,08		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C109		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C110		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C111		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C112		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C113,14		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C115-17		ECUM1H821KBV	CHIP 50V 820P	3	
C118		ECEA1AKK100	E.CAPACITOR 10V 10U	1	
C119,20		ECEA1ASN100	E.CAPACITOR 10V 10U	2	
C122		ECUM1H101JCV	CHIP 50V 100P	1	
C123		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C124		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C125		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C126		ECUM1H102KBV	CHIP 50V 1000P	1	
C127		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C301		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C303		ECSF1CE105	T.CAPACITOR 16V 1U	1	
C304		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C305		ECEA1CSN4R7	E.CAPACITOR 16V 4.7U	1	
C306		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C307		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C308		ECUM1H102KBV	CHIP 50V 1000P	1	
C309		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C310,11		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C312		ECUX1H561KBN	CHIP 50V 560P	1	
C313		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C314		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C315		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C316		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C319,20		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C321,22		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C323,24		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C325		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C326		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C327		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C328		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C329		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C330		ECSF0JE476	TANTALUM 6.3V 47U	1	
C331		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C335-38		ECUX1E104ZFN	CHIP 25V 0.1U	4	
C340		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C341		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C342		ECSF1AE476	T.CAPACITOR 10V 47U	1	
C344		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C345		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C346		ECUM1H331KBV	CHIP 50V 330P	1	
C347		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C351		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C353		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C354		ECSF1CE106	T.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C355		ECST1AY225Z	T.CAPACITOR 10V 2.2U	1	
C356-59		ECUX1E104ZFN	CHIP 25V 0.1U	4	
C360		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C361		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C362		ECUM1H101JCV	CHIP 50V 100P	1	
C363		ECUM1H151JCV	CHIP 50V 150P	1	
C364		ECUM1H150JCV	CHIP 50V 15P	1	
C365		ECSF1CE225	T.CAPACITOR 16V 2.2U	1	
C366		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C370		ECUM1H102KBV	CHIP 50V 1000P	1	
C371,72		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C373		ECUM1H101JCV	CHIP 50V 100P	1	
C379		ECUM1H101JCV	CHIP 50V 100P	1	
C382		ECUM1H101JCV	CHIP 50V 100P	1	
C383		ECUM1H681KBV	CHIP 50V 680P	1	
C390		ECUM1H102KBV	CHIP 50V 1000P	1	
C391		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C901		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C904		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C905		ECUM1H330JCV	CHIP 50V 33P	1	
C906,07		ECUM1H102KBV	CHIP 50V 1000P	2	
C908		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C909		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C910		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C911		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C912		ECUX1H103ZFN	CHIP 50V 0.01U	1	
D101		MA713	DIODE	1	
D102		MA728	DIODE	1	
D104		MA728	DIODE	1	
D105		MA713	DIODE	1	
D302		MA3047M	DIODE	1	
D303		MA728	DIODE	1	
D304		MA141K	DIODE	1	
D305		MA141WK	DIODE	1	
D306		MA141K	DIODE	1	
D308		MA110	DIODE	1	
FL301		ELB5B018	FILTER	1	
FL303,04		ELB4A011	FILTER	2	
FL305		VLF0607	FILTER	1	
FL306		ELB4E001	FILTER	1	
FL307		ELB4A003	FILTER	1	
FL308		ELB4B016	FILTER	1	
FL309		ELB4B002	FILTER	1	
FL311		ELB4B002	FILTER	1	
FP101		VJS2282	CONNECTOR	1	
FP301		VJS2137	CONNECTOR	1	
IC101		LM2902M	IC	1	
IC102		AN1324NS	IC	1	
IC103,04		AN1358S	IC	2	
IC105		NJM3415M	IC	1	
IC106		AN1358S	IC	1	
IC301-03		AN1358S	IC	3	
IC304		AN2153S	IC	1	
IC305		MN4052BS	IC	1	
IC306		LM2902M	IC	1	
IC307		UPD9313GB	IC	1	
IC308		VCR0256	IC	1	
IC309		MC8181A	IC	1	
IC310		VCR0255	IC	1	
IC901		AN2253FA	IC	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L301,02		VLQ0163K150	COIL 15UH	2	
L303,04		ELJFA150K	COIL 15H	2	
L306		VLQ0163K330	COIL 33UH	1	
L307		VLQ0163K180	COIL 18UH	1	
L308		ELJFA150K	COIL 15H	1	
L311-13		ELJFA150K	COIL 15H	3	
L314		VLQ0163K150	COIL 15UH	1	
L315		VLQ0291	COIL	1	
L901		VLQ0163K330	COIL 33UH	1	
P301		VJP1597R	CONNECTOR(MALE) 4P	1	
P303		VJP1595T	CONNECTOR(MALE) 2P	1	
P305		VJP1595T	CONNECTOR(MALE) 2P	1	
PK901,02		VJR0367	CONNECTOR	2	
Q301-03		2SD1819	TRANSISTOR	3	
Q304-06		2SB1218	TRANSISTOR	3	
Q307		2SD1819	TRANSISTOR	1	
Q308		2SB1218	TRANSISTOR	1	
Q311		2SD1819	TRANSISTOR	1	
Q314,15		2SD1819	TRANSISTOR	2	
Q316		2SC3931	TRANSISTOR	1	
Q318		2SB1218	TRANSISTOR	1	
Q319		2SB1219	TRANSISTOR	1	
Q320,21		2SD1819	TRANSISTOR	2	
Q322		2SB1219	TRANSISTOR	1	
Q323		2SD874	TRANSISTOR	1	
Q324,25		2SD1819	TRANSISTOR	2	
Q327		2SD1819	TRANSISTOR	1	
Q328		2SC3931	TRANSISTOR	1	
Q329,30		2SD1819	TRANSISTOR	2	
Q331		2SB970	TRANSISTOR	1	
Q332		2SD1819	TRANSISTOR	1	
Q333		2SC3931	TRANSISTOR	1	
Q334,35		2SA1610	TRANSISTOR	2	
Q336		2SD1819	TRANSISTOR	1	
Q339		2SD1819	TRANSISTOR	1	
Q340		2SK316	TRANSISTOR	1	
Q343		2SK316	TRANSISTOR	1	
Q344		2SB1218	TRANSISTOR	1	
Q345		2SD1819	TRANSISTOR	1	
Q346,47		2SB1218	TRANSISTOR	2	
Q348		2SK316	TRANSISTOR	1	
Q352		2SK316	TRANSISTOR	1	
Q353		2SC3931	TRANSISTOR	1	
Q901		2SA1532	TRANSISTOR	1	
Q902		2SB1218	TRANSISTOR	1	
QR302		UN5215	COMBI.PARTS	1	
			RESISTORS		
R101,02		ERJ3GEYJ561	CHIP 1/20W 560	2	
R103		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R104		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R105		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R106		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R107		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R109		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R110-13		ERJ3GEYJ333	CHIP 1/20W 33K	4	
R114		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R116		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R117		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R118		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R119		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R120		ERJ3GEYJ470	CHIP 1/20W 47	1	
R121		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R122		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R123		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R124-26		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R127-30		ERJ3GEYJ104	CHIP 1/20W 100K	4	
R134		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R136		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R137		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R138		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R139		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R140		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R141		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R142		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R143		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R144		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R145,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R147		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R149		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R150-52		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R157		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R158		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R161		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R162		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R165		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R166		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R168		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R170		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R171		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R172		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R173		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R174		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R175		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R302		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R304		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R306		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R307		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R308		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R310		ERJ3GEYJ104	CHIP 1/20W 10K	1	
R311		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R312		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R313		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R314		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R315		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R316		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R317		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R318		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R319-22		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R323		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R324,25		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R326		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R327		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R328		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R329		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R330		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R331		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R332		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R333		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R334		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R335		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R336		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R337		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R338		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R339,40		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R341		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R342,43		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R344		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R345		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R346		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R347		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R348		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R349		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R350		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R351-53		ERJ3GEYJ103	CHIP 1/20W 10K	3	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R354		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R355		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R356		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R357		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R358		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R359		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R362		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R363		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R366-68		ERJ3GEYJ273	CHIP 1/20W 27K	3	
R371		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R372		ERJ6GEYK106	CHIP 1/10W 10M	1	
R373		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R374		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R375		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R376		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R377		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R378		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R379		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R380		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R381,82		ERJ3GEYJ563	CHIP 1/20W 56K	2	
R383		ERJ6GEYK106	CHIP 1/10W 10M	1	
R384		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R385		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R386		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R387		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R388		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R389		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R390		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R391		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R392		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R393		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R394,95		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R396		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R397		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R398		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R399		ERJ3GEYJ181	CHIP 1/20W 180	1	
R401		ERJ3GEYJ681	CHIP 1/20W 680	1	
R402		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R403		ERJ3GEY0R00	CHIP 1/20W 0	1	
R404		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R405		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R406		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R407,08		ERJ6GEYF561	CHIP 1/10W 560	2	
R409		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R410		ERJ3GEY0R00	CHIP 1/20W 0	1	
R411		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R412		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R413		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R415,16		ERJ6GEYF472	CHIP 1/10W 4.7K	2	
R417		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R418		ERJ3GEYG682	CHIP 1/20W 6.8K	1	
R419		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R420,21		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R422		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R423,24		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R425		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R426		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R427		ERJ3GEY0R00	CHIP 1/20W 0	1	
R428		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R429		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R430		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R431		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R432,33		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R434		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R435		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R436		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R437		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R438		ERJ3GEYJ561	CHIP 1/20W 560	1	
R439		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R440		ERJ3GEYJ331	CHIP 1/20W 330	1	
R441		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R442		ERJ3GEYJ391	CHIP 1/20W 390	1	
R443,44		ERJ3GEYJ222	CHIP 1/20W 2.2K	2	
R445		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R446		ERJ3GEYJ271	CHIP 1/20W 270	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R447-49		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R450		ERJ3GEYJ561	CHIP 1/20W 560	1	
R451		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R453		ERJ3GEY0R00	CHIP 1/20W 0	1	
R455		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R456		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R457		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R458		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R459		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R460		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R461		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R462		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R464		ERJ3GEY0R00	CHIP 1/20W 0	1	
R466,67		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R468		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R469		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R471		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R472		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R473		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R474		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R475		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R476		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R477		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R478		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R479		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R480		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R481		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R482		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R483		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R485		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R486-89		ERJ3GEYJ102	CHIP 1/20W 1K	4	
R490		ERJ6GEY0R00	CHIP 1/10W 0	1	
R495		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R496		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R498		ERJ3GEYJ561	CHIP 1/20W 560	1	
R499		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R901		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R902		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R903		ERJ3GEY0R00	CHIP 1/20W 0	1	
R905		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R906		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R907		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R908		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R909,10		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R911		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R912		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R913		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R914		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R915		ERJ3GEYJ560	CHIP 1/20W 56	1	
R916		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R917		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R918		ERJ3GEYG112	CHIP 1/20W 1.1K	1	
R919		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R920		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R921		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R922		ERJ3GEYJ273	CHIP 1/20W 27K	1	
TH101-04		VRE0023	RESISTOR	4	
VR101,02		EVM7YSW00B14	V.RESISTOR 10K	2	
VR103		EVM7YSW00B54	V.RESISTOR 50K	1	
VR104		EVM7YSW00B25	V.RESISTOR 200K	1	
VR105		EVM7YSX00B14	V.RESISTOR 10K	1	
VR106		EVM7YSW00B14	V.RESISTOR 10K	1	
VR107		EVM7YSW00B24	V.RESISTOR	1	
VR301		EVM7YSW00B14	V.RESISTOR 10K	1	
VR302		EVM7YSX00B13	V.RESISTOR 1K	1	
VR303		EVM7YSX00B14	V.RESISTOR 10K	1	
VR304		EVM7YSW00B13	V.RESISTOR 1K	1	
VR305		EVM7YSW00B53	V.RESISTOR	1	
VR306		EVM7YSX00B14	V.RESISTOR 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR308		EVM7YSW00B55	V.RESISTOR 500K	1	
VR312		EVM7YSW00B14	V.RESISTOR 10K	1	
VR313		EVM7YSX00B14	V.RESISTOR 10K	1	
VR314,15		EVM7YSX00B54	V.RESISTOR 50K	2	
VR316,17		EVM7YSX00B23	V.RESISTOR 2K	2	
VR318,19		EVM7YSX00B24	V.RESISTOR 20K	2	
VR322-24		EVM7YSW00B14	V.RESISTOR 10K	3	
VR325		EVM7YSW00B34	V.RESISTOR 30K	1	
VR326		EVM7YSX00B24	V.RESISTOR 20K	1	
			MISCELLANEOUS		
		VSC2247	DELAY LINE SHIELD CASE	1	
		VXA3369	SYNC SHILD PLATE UNIT	1	
	■	VEP28014B	AUTO FOCUS C.B.A.		
B601		VJP2227	CONNECTOR (MALE)	1	
			CAPACITORS		
C601		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C602		ECUM1H270JCV	CHIP 50V 27P	1	
C603,04		ECUM1H330JCV	CHIP 50V 33P	2	
C605-07		ECUM1H103ZFV	CHIP 50V 0.01U	3	
C608-11		ECUM1H101JCV	CHIP 50V 100P	4	
C612		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C613,14		ECUM1E473KB	CHIP 25V 0.047U	2	
C615		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C616,17		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C618-20		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C621		ECRJA020E12W	TRIMMER	1	
C622		ECUM1H391KBV	CHIP 50V 390P	1	
C623		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C624,25		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C626		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C627		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C628,29		ECUX1E273KBN	CHIP 25V 0.027U	2	
C630		ECUM1E683ZFN	CHIP 25V 0.063U	1	
C631		ECUX1E273KBN	CHIP 25V 0.027U	1	
C632		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C633		ECUX1E223KBN	CHIP 25V 0.023U	1	
C634		ECEA0JSN220	E.CAPACITOR 6.3V 22U	1	
C635		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C636		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C637		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C638,39		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C640		ECUM1H100DCV	CHIP 50V 10P	1	
C641,42		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C646		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C648		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C649,50		ECUM1H333KB	CHIP 50V 0.033U	2	
C651		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C652		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C653		ECEA1CU100	E.CAPACITOR 16V 10U	1	
C655		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C656		ECRJA020E12X	TRIMMER	1	
C657		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C658		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C659		ECUM1H470JCV	CHIP 50V 47P	1	
C660		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C661		ECUM1H391KBV	CHIP 50V 390P	1	
C663		ECUM1H121JCV	CHIP 50V 120P	1	
D602,03		MA110	DIODE	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D604,05		1SS250	DIODE	2	
D606,07		MA110	DIODE	2	
FL601		ELB4B004	FILTER	1	
FL602		VLF0595	FILTER	1	
FL603		ELB4B005	FILTER	1	
FL604		ELB4D001	FILTER	1	
FL605		VLF0596	FILTER	1	
IC601		MN15865VPS	IC	1	
IC602		AN2583S	IC	1	
IC603		AN78N05	IC	1	
IC604		RC4558M	IC	1	
IC605		AN6562S	IC	1	
IC606		RC3415M	IC	1	
IC607		MN1280Q	IC	1	
L601		VLQ0300J560	COIL 56UH	1	
L602		VLQ0163K330	COIL 33UH	1	
L603		VLQEL05F101K	COIL 100UH	1	
P601		VJP1600T	CONNECTOR(MALE) 7P	1	
P602		VJP1595R	CONNECTOR(MALE) 2P	1	
P603		VJP1597T	CONNECTOR(MALE) 4P	1	
P604		VJP1596T	CONNECTOR(MALE) 3P	1	
Q601,02		2SD1819	TRANSISTOR	2	
Q603		2SB710	TRANSISTOR CHIP	1	
Q604		2SB1219	TRANSISTOR	1	
Q605		2SD1820	TRANSISTOR	1	
Q606		2SB1219	TRANSISTOR	1	
Q607		2SD1820	TRANSISTOR	1	
Q608-12		2SD1819	TRANSISTOR	5	
Q613		2SA1255	TRANSISTOR	1	
Q614		2SC3138	TRANSISTOR	1	
Q615		2SD1819	TRANSISTOR	1	
Q616,17		2SB1220	TRANSISTOR	2	
Q618-21		2SD1819	TRANSISTOR	4	
			RESISTORS		
R602,03		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R604		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R605		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R606		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R607		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R608		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R609,10		ERJ3GEYJ563	CHIP 1/20W 56K	2	
R611		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R612		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R613		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R614		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R615		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R616,17		ERJ3GEYJ104	CHIP 1/20W 100K	2	
R618		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R619		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R620,21		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R622		ERJ3GEYJ271	CHIP 1/20W 270	1	
R623		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R624		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R625		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R626-29		ERJ3GEYJ102	CHIP 1/20W 1K	4	
R630		ERJ3GEYJ751	CHIP 1/20W 750	1	
R631		ERJ3GEYJ331	CHIP 1/20W 330	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R632		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R633		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R634		ERJ6GEYJ224	CHIP 1/10W 220K	1	
R635,36		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R637		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R638		ERJ6GEYF333	CHIP 1/10W 33K	1	
R639		ERJ6GEYF473	CHIP 1/10W 47K	1	
R640		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R641		ERJ6GEYF333	CHIP 1/10W 33K	1	
R642		ERJ6GEYF473	CHIP 1/10W 47K	1	
R643		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R644		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R645		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R646,47		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R648		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R649,50		ERJ3GEYJ123	CHIP 1/20W 12K	2	
R651		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R652		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R653		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R654,55		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R656		ERJ3GEYJ220	CHIP 1/20W 22	1	
R657,58		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R659		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R660-64		ERJ3GEYJ104	CHIP 1/20W 100K	5	
R665,66		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R667		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R668		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R669,70		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R671,72		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R673,74		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R675		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R676		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R677		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R678		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R679,80		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R681,82		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R683		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R684		ERJ3GEYJ681	CHIP 1/20W 680	1	
R685		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R686		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R687		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R688		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R689		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R691		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R692		ERJ3GEYJ100	CHIP 1/20W 10	1	
R693-96		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R697		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R698		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R699		ERJ3GEYJ220	CHIP 1/20W 22	1	
R800		ERJ3GEYJ221	CHIP 1/20W 220	1	
R801		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
T601		ETE13K43AY	TRANSFORMAR	1	
VR601		EVML1GA00B53	V.RESISTOR 5K	1	
VR602		EVML1GA00B15	V.RESISTOR 100K	1	
VR603		EVM7YSX00B14	V.RESISTOR 10K	1	
X601		VSX0196	CRYSTAL OSCILLATOR	1	
			MISELLANEOUS		
		VSC2318	AF SHIELD CASE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP22076A	SENSOR C.B.A.		
B201		VJP1948	CONNECTOR (MALE)	1	
			CAPACITORS		
C201		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C202-04		ECUM1H150JCV	CHIP 50V 15P	3	
C206		ECRJA020E12X	TRIMMER	1	
C207		ECUM1H220JCV	CHIP 50V 22P	1	
C208		ECUM1H150JCV	CHIP 50V 15P	1	
C209		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C210		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C211		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C213		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C215		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C217		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C218		ECUM1E104MD	CHIP 25V 0.1U	1	
C219		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C220		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C221,22		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C223		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C224		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C225		ECSF1AE336	T.CAPACITOR 10V 33U	1	
C226		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C229		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C230		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C231		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C232-35		ECUM1H270JCV	CHIP 50V 27P	4	
C236		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C238		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C240-43		ECUX1E104ZFN	CHIP 25V 0.1U	4	
C244		ECUM1H120JCV	CHIP 50V 12P	1	
C245,46		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C247		ECUM1H101JCV	CHIP 50V 100P	1	
C248-50		ECUM1H330JCV	CHIP 50V 33P	3	
C253		ECUM1H330JCV	CHIP 50V 33P	1	
C260,61		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C262		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C263		ECUM1H100DCV	CHIP 50V 10P	1	
C265		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C267		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C268-70		ECUX1E104ZFN	CHIP 25V 0.1U	3	
D201		MA110	DIODE	1	
D204		MA110	DIODE	1	
D208,09		MA110	DIODE	2	
D210		MA141K	DIODE	1	
D211		MA110	DIODE	1	
D212		MA3160H	DIODE	1	
D213,14		MA110	DIODE	1	
FL201		VLF0606	FILTER	1	
FP201		VJS2125	CONNECTOR	1	
IC201		MN5103	IC	1	
IC202		UPD6147G	IC	1	
IC203		MC8088B	IC	1	
IC204		AN78L05	IC	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L201-05		VLQ0163K150	COIL 15UH	5	
L206		VLQ0187K150	COIL 15UH	1	
L207		VLQ0163K150	COIL 15UH	1	
L210		VLQ0291	COIL	1	
L214		VLQ0291	COIL	1	
Q202,03		2SD1819	TRANSISTOR	2	
Q204		2SC3930	TRANSISTOR	1	
Q205		2SA1610	TRANSISTOR	1	
Q206		2SD1819	TRANSISTOR	1	
Q207		2SA1610	TRANSISTOR	1	
Q208		2SC4176	TRANSISTOR	1	
Q209		2SA1610	TRANSISTOR	1	
Q210		2SC4176	TRANSISTOR	1	
Q212,13		2SD1819	TRANSISTOR	2	
Q214		2SC3931	TRANSISTOR	1	
			RESISTORS		
R201		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R203		ERJ3GEYJ821	CHIP 1/20W 8.2K	1	
R204		ERJ3GEYJ181	CHIP 1/20W 180	1	
R205		ERJ3GEYJ331	CHIP 1/20W 330	1	
R206		ERJ3GEYJ681	CHIP 1/20W 680	1	
R207		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R210		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R211		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R212		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R215		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R216		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R217		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R218		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R219		ERJ3GEYJ220	CHIP 1/20W 22	1	
R220		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R221		ERJ3GEYJ560	CHIP 1/20W 56	1	
R222		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R224		ERJ3GEYJ471	CHIP 1/20W 470	1	
R225		ERJ3GEYJ561	CHIP 1/20W 560	1	
R226		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R227		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R229		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R235		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R240		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R241		ERJ3GEYJ221	CHIP 1/20W 220	1	
R242		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R243,44		ERJ3GEYJ471	CHIP 1/20W 470	2	
R245,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R247		ERJ3GEYJ101	CHIP 1/20W 100	1	
R249		ERJ3GEYJ101	CHIP 1/20W 100	1	
R250		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R251		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R252		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R254		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R259		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R260		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R261		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R262		ERJ3GEYJ471	CHIP 1/20W 470	1	
VR201		EVM7YSX00B25	V.RESISTOR 200K	1	
VR202		EVM7YSW00B23	V.RESISTOR 2K	1	
VR203		EVM7YSW00B24	V.RESISTOR	1	
X201		VSX0287	CRYSTAL OSCILLATOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP23060A	ENCODER C.B.A.		
			CAPACITORS		
C901		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C904		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C905		ECUM1H470JCV	CHIP 50V 47P	1	
C906,07		ECUM1H102KBV	CHIP 50V 1000P	2	
C908		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C909		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C910		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C911		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C912		ECUM1H103ZFV	CHIP 50V 0.01U	1	
IC901		AN2253FA	IC	1	
L901		VLQ0163K330	COIL 33UH	1	
PK901,02		VJR0367	CONNECTOR	2	
Q901		2SA1532	TRANSISTOR	1	
Q902		2SB1218	TRANSISTOR	1	
			RESISTORS		
R901,02		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R903		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R904		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R905		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R906		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R907		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R908		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R909,10		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R911		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R912		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R913		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R914		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R915		ERJ3GEYJ560	CHIP 1/20W 56	1	
R916		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R917		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R918		ERJ3GEG911	M.RESISTOR CH 3W 910	1	
R919		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R920		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R921		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R922		ERJ3GEYJ273	CHIP 1/20W 27K	1	
	■	VEP06455C	CAMERA OPERATION C.B.A.		
			CAPACITORS		
C1,C2		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C3		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
D1-D6		MA165	DIODE	6	
D7		BR3668S	DIODE	1	
D8		LN38GCPPSVT	DIODE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
P1		VJP1614T	CONNECTOR(MALE)	1	
P3		VJP1606T	CONNECTOR(MALE)	1	
			RESISTORS		
R1		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R2,R3		ERDS2TJ563	C.RESISTOR 1/4W 56K	2	
R6		ERDS2TJ473	C.RESISTOR 1/4W 47K	1	
R7		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R8,R9		ERDS2TJ103	C.RESISTOR 1/4W 10K	2	
R10		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R11		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
SW1-W6		EVQQSU04W	SWITCH	6	
SW7		VSS0126	SWITCH	1	
SW9		EVQQSU04W	SWITCH	1	
SW10		VSS0126	SWITCH	1	
SW11		VSS0170	SWITCH	1	
SW12		VSS0126	SWITCH	1	
VR1		VRV0100	V.RESISTOR 50K	1	#VR
VR2		VRV0047	V.RESISTOR 50K	1	
	■	VEP20242A	FOCUS & ZOOM POSITION		
			SENSOR C.B.A.		
			E.V.F SECTION		
	■	VEP27033E	E.V.F (1) C.B.A.		
			CAPACITORS		
C701		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C702		ECSE1CY684V	T.CAPACITOR 16V 0.68U	1	
C703		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C704		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C705		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C706		ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C707		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C708		ECUX1E223KBN	CHIP 25V 0.023U	1	
C709		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C710		ECUM1H152JN	CHIP 50V 1500P	1	
C711		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C712		ECEA1AF470	E.CAPACITOR 10V 47U	1	
C713		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C714		ECQK1392JZ	P.CAPACITOR 100V 3900P	1	
C715		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C716		ECUX1H181KN	CHIP 50V 180P	1	
C717		ECEA1HKS4R7	E.CAPACITOR 50V 4.7U	1	
C718		VCK0075K121	C.CAPACITOR 120P	1	
C719		VCK0058K331	C.CAPACITOR 330P	1	
C720,21		ECUX1H473ZFN	CHIP 50V 0.047U	2	
C722		ECUX1H104ZFN	CHIP 50V 0.1U	1	
D701		MA151K	DIODE	1	
D702		ERA91-02	DIODE	1	
D703		ERA34-10	DIODE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
IC701		AN2510S	IC	1	
L701		ELC04D007	COIL	1	
L702		ELH5L328	COIL	1	
P701		VJP1234	CONNECTOR (MALE)	1	
P702		VJP1231T	CONNECTOR(MALE) 4P	1	
P703		VJP1229T	CONNECTOR (MALE)	1	
Q701		2SB709	TRANSISTOR CHIP	1	
Q702		2SD968A	TRANSISTOR	1	
Q703		2SA1022	TRANSISTOR	1	
			RESISTORS		
R701		ERJ6GEYK6R8	CHIP 1/10W 6.8	1	
R702		ERJ6GEYG682	CHIP 1/10W 6.8K	1	
R703		ERJ6GEYJ392	CHIP 1/10W 3.9K	1	
R704		ERJ6GEYJ182	CHIP 1/10W 1.8K	1	
R705		ERJ6GEYK4R7	CHIP 1/10W 4.7	1	
R706		ERJ6GEYJ150	CHIP 1/10W 15	1	
R707		ERJ6GEYJ151	CHIP 1/10W 150	1	
R708		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R709		ERJ6GEYJ163	CHIP 1/10W 16K	1	
R710		ERJ6GEYJ561	CHIP 1/10W 560	1	
R711		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R712		ERJ6GEYJ683	CHIP 1/10W 68K	1	
R713		ERJ6GEYJ222	CHIP 1/10W 2.2K	1	
R714		ERJ6GEYJ562	CHIP 1/10W 5.6K	1	
R715,16		ERJ6GEYJ102	CHIP 1/10W 1K	2	
R717		ERJ6GEYJ561	CHIP 1/10W 560	1	
R718		ERJ6GEYJ222	CHIP 1/10W 2.2K	1	
R719		ERJ8GCJ222V	CHIP 1/8W 2.2K	1	
R720		ERJ6GEYJ274	CHIP 1/10W 270K	1	
R721		ERJ6GEYJ223	CHIP 1/10W 22K	1	
R722		ERJ6GEYJ682	CHIP 1/10W 6.8K	1	
R723		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R724		ERJ6GEYJ105	CHIP 1/10W 1M	1	
R726,27		ERJ6GEYK155	CHIP 1/10W 1.5M	2	
R728		ERJ6GEYK335	CHIP 1/10W 3.3M	1	
R729		ERJ6GEYJ474	CHIP 1/10W 470K	1	
R730		ERJ6GEYJ821	CHIP 1/10W 820	1	
R731		ERJ6GEYJ272	CHIP 1/10W 2.7K	1	
T701		ETF14L35A	TRANSFORMER	1	
TH701		VRT0012	THERMISTER	1	
VR701		VRV0079B221K	V.RESISTOR	1	
VR702		VRV0079B472K	V.RESISTOR 1/5W 4.7K	1	
VR704		VRV0027B225K	V.RESISTOR	1	
VR705		VRV0027B105K	V.RESISTOR	1	
	■	VEP27037A	E.V.F (2) C.B.A.		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D751		EBR5608S	DIODE	1	
			RESISTORS		
R751		ERJ8GCYJ151	M.RESISTOR CH 1/8W 150	1	
SW751		VSS0232	SWITCH	1	
	■	VEP03582A	MAIN C.B.A.		
			CAPACITORS		
C1001		ECUM1H820JCV	CHIP 50V 82P	1	
C1002		ECUM1H561KBV	CHIP 50V 560P	1	
C1003		ECUM1H471KBV	CHIP 50V 470P	1	
C1004		ECUM1C105ZFM	CHIP 16V 1U	1	
C1005,06		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C1007		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C1008,09		ECUM1C105ZFM	CHIP 16V 1U	2	
C1010		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C1011		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C1012		ECEA1AGE221	E.CAPACITOR 10V 220U	1	
C1013,14		ECUX1E223ZFN	CHIP 25V 0.022U	2	
C1015		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1017		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C1016		ECEA0JKJ221	E.CAPACITOR 6.3V 220U	1	
C1019		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1020,21		ECEA1CKJ101	E.CAPACITOR 16V 100U	2	
C1026		ECUX1H153KBN	CHIP 50V 0.015U	1	
C1027		ECUX1H681JN	CHIP 50V 680P	1	
C1028		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C1029		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C1030,31		ECEA1AKA330	E.CAPACITOR 10V 33U	2	
C1032		ECUX1H102KBN	CHIP 50V 1000P	1	
C1033		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C1034		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C1035		ECEA1AGE221	E.CAPACITOR 10V 220U	1	
C1040		ECUX1E223ZFN	CHIP 25V 0.022U	1	
C1042		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2001,02		ECUM1H101JCV	CHIP 50V 100P	2	
C2003		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2004,05		ECEA0JKA470	E.CAPACITOR 6.3V 47U	2	
C2006		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C2007		ECUM1H472ZFV	CHIP 50V 4700P	1	
C2009,10		ECEA0JK220	E.CAPACITOR 6.3V 22U	2	
C2011		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C2012		ECUM1H222KBV	CHIP 50V 2200P	1	
C2013		ECUM1H102KBV	CHIP 50V 1000P	1	
C2014		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	1	
C2015,16		ECUM1C105ZFM	CHIP 16V 1U	2	
C2017,18		ECUM1H102KBV	CHIP 50V 1000P	2	
C2019		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2020		ECUM1H471KBV	CHIP 50V 470P	1	
C2021,22		ECUM1C105ZFM	CHIP 16V 1U	2	
C2023		ECUX1E333ZFN	CHIP 25V 0.033U	1	
C2024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2025		ECEA1AKG680	E.CAPACITOR 10V 68U	1	
C2026		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2027		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2028		ECUM1C105ZFM	CHIP 16V 1U	1	
C2029		ECUM1H102KBV	CHIP 50V 1000P	1	
C2030		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2032		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2033		ECUM1C105ZFM	CHIP 16V 1U	1	
C2034		ECUM1H101JCV	CHIP 50V 100P	1	
C2035		ECUM1H102KBV	CHIP 50V 1000P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2036		ECUM1E104KBM	CHIP 25V 0.1U	1	
C2037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2038		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2039		ECEA0GK101	E.CAPACITOR 4V 100U	1	
C2040		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2041		ECUM1C105ZFM	CHIP 16V 1U	1	
C2042		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2043		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2044		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2045		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C2046-48		ECUX1E333ZFN	CHIP 25V 0.033U	3	
C2049		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2050		ECUM1C105ZFM	CHIP 16V 1U	1	
C2051		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2053		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C2054		ECUX1H333ZFN	CHIP 50V 0.033U	1	
C2055		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2056-58		ECEA1EKN3R3	E.CAPACITOR 25V 3.3U	3	
C2059-61		ECUM1H472ZFV	CHIP 50V 4700P	3	
C2062		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C2063,64		ECEA1CKA470	E.CAPACITOR 16V 47U	2	
C2065-67		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	3	
C2068-70		ECUX1H103ZFN	CHIP 50V 0.01U	3	
C2072,73		ECUM1C474ZFM	CHIP 16V 0.47U	2	
C2074,75		ECUM1H150JCV	CHIP 50V 15P	2	
C2076		ECUM1C105ZFM	CHIP 16V 1U	1	
C2077		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2078		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C2079		ECUM1H560JCV	CHIP 50V 56P	1	
C2081		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2082		ECUM1E103ZFV	C.CAPACITOR CH 25V 0.01U	1	
C3001		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3002		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3003,04		ECEA0JK221	E.CAPACITOR 6.3V 220U	2	
C3005		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C3007		ECUM1E223ZFV	CHIP 25V 0.022U	1	
C3010,11		ECEA0JK221	E.CAPACITOR 6.3V 220U	2	
C3012		ECUM1H220JCV	CHIP 50V 22P	1	
C3013		ECUM1H122KBV	CHIP 50V 1200P	1	
C3014		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3015,16		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3017		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3018		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3019		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C3020		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3021		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3022		ECUM1H330JCV	CHIP 50V 33P	1	
C3023		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3024		ECUM1C105ZFM	CHIP 16V 1U	1	
C3025		ECUM1H471KBV	CHIP 50V 470P	1	
C3026		ECUM1H271KBV	CHIP 50V 270P	1	
C3027		ECUM1H221KBV	CHIP 50V 220P	1	
C3028		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C3029		ECUM1H820JCV	CHIP 50V 82P	1	
C3030		ECUM1H390JCV	CHIP 50V 39P	1	
C3031,32		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3033		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3034		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3035		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3037-39		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	3	
C3040		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3045,46		ECUM1H680JCV	CHIP 50V 68P	2	
C3047		ECUM1H181JV	CHIP 50V 180P	1	
C3048		ECUM1H820JCV	CHIP 50V 82P	1	
C3049		ECUX1H681JN	CHIP 50V 680P	1	
C3050		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3051		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3052		ECUM1E103KBV	CHIP 25V 0.01U	1	
C3053		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C3054-56		ECUM1H103ZFV	CHIP 50V 0.01U	3	
C3057		ECUM1H101JCV	CHIP 50V 100P	1	
C3058		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3059		ECUM1H470JCV	CHIP 50V 47P	1	
C3060		ECUM1H100CCV	CHIP 50V 10P	1	
C3061,62		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3063		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3064,65		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3066		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3068		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3070		ECUM1H270JCV	CHIP 50V 27P	1	
C3071		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3072		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3074,75		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3076		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3077		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3078,79		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3080		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3083		ECUM1H470JCV	CHIP 50V 47P	1	
C3085		ECUM1H151JV	CHIP 50V 150P	1	
C3086		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3087		ECUM1H681KBV	CHIP 50V 680P	1	
C3096,97		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3099		ECUM1H560JCV	CHIP 50V 56P	1	
C3100		ECUM1H080CCV	C.CAPACITOR CH 50V 8P	1	
C3103		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3104		ECUM1H100CCV	CHIP 50V 10P	1	
C3105		ECUM1H271JV	CHIP 50V 270P	1	
C3110		ECUM1E103ZFV	C.CAPACITOR CH 25V 0.01U	1	
C3111		ECUM1H101JCV	CHIP 50V 100P	1	
C3112		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3115		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3116		ECUX1H103ZFV	CHIP 50V 0.01U	1	
C3118,19		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C3120		ECUM1H470JCV	CHIP 50V 47P	1	
C3121		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3123		ECUX1H331JN	CHIP 50V 680P	1	
C3124		ECUX1H561JN	CHIP 50V 560P	1	
C3125		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C3201		ECUM1H820JCV	CHIP 50V 82P	1	
C3202		ECUM1H271KBV	CHIP 50V 270P	1	
C3203		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3204		ECUM1H181JV	CHIP 50V 180P	1	
C3205		ECUM1H271KBV	CHIP 50V 270P	1	
C3206		ECUM1H820JCV	CHIP 50V 82P	1	
C3207		ECUM1H271KBV	CHIP 50V 270P	1	
C3208		ECUM1H181JV	CHIP 50V 180P	1	
C3209		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3210		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3501,02		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3503		ECUM1H121JCV	CHIP 50V 120P	1	
C3504		ECUM1H151JV	CHIP 50V 150P	1	
C3505		ECUM1H390JCV	CHIP 50V 39P	1	
C3506,07		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3508		ECQV1H394JZ	P.CAPACITOR 50V 0.39U	1	
C4001		ECQP1222JZ	P.CAPACITOR 100V 2200P	1	
C4002		ECRHC120N11	TRIMER	1	
C4003		ECUM1H562KBV	CHIP 50V 5600P	1	
C4004		ECUM1H472KBV	CHIP 50V 4700P	1	
C4005		ECUM1H122KBV	CHIP 50V 1200P	1	
C4007		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C4008		ECUX1H333ZFN	CHIP 50V 0.033U	1	
C4009		ECEA0JKA330	E.CAPACITOR 6.3V 33U	1	
C4011		ECUM1E822KBV	CHIP 25V 8200P	1	
C4012		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4013		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4014		ECUM1H182KBV	CHIP 50V 1800P	1	
C4015		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C4016		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C4017		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4018		ECEA0JKA330	E.CAPACITOR 6.3V 33U	1	
C4019		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4021		ECUX1E153KBN	CHIP 25V 0.015U	1	
C4023		ECUX1E183KBN	CHIP 25V 0.018U	1	
C4024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4025		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4026		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4027		ECUX1H682KBN	CHIP 50V 6800P	1	
C4028		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4029		ECUM1H222KBV	CHIP 50V 2200P	1	
C4030		ECEA1AK101	E.CAPACITOR 10V 100U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4031		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C4032		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C4033		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C4034		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4036		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4037		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4038		ECEA1AKA330	E.CAPACITOR 10V 33U	1	
C4039		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4040		ECUM1H151JV	CHIP 50V 150P	1	
C4042		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4043		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4045		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C5001		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5002		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5003		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5004		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5005		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5006		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5007		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5008		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5009		ECUM1C105ZFM	CHIP 16V 1U	1	
C5010,11		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5012,13		ECUM1C105ZFM	CHIP 16V 1U	2	
C5014,15		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5016		ECUM1C105ZFM	CHIP 16V 1U	1	
C5017-20		ECUM1H220JCV	CHIP 50V 22P	4	
C5021		ECUM1C105ZFM	CHIP 16V 1U	1	
C5022		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5023		ECUM1H330JCV	CHIP 50V 33P	1	
C5024		ECEB0JU101	E.CAPACITOR 6.3V 100U	1	
C5025		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5026		ECUM1H101JCV	CHIP 50V 100P	1	
C5027		ECUM1H680JCV	CHIP 50V 68P	1	
C5029		ECUM1H050CCV	CHIP 50V 5P	1	
C5030		ECUM1H060CCV	C.CAPACITOR CH 50V 6P	1	
C5031		ECUM1H330JCV	CHIP 50V 33P	1	
C5032		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5033		ECUM1H332KBV	CHIP 50V 3300P	1	
C5034		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5035		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5036		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5038		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5039		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C5040		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5041		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5047-50		ECUX1E223KBN	CHIP 25V 0.023U	4	
C5051		ECUM1H101JCV	CHIP 50V 100P	1	
C5052,53		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5054		ECQB1H153JZ	P.CAPACITOR 50V 0.015U	1	
C6001		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C6002		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6003		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C6004		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C6005		ECUM1H220JCV	CHIP 50V 22P	1	
C6006,07		ECUM1H150JCV	CHIP 50V 15P	2	
C6008		ECUM1C105ZFM	CHIP 16V 1U	1	
C6009-12		ECUM1H103ZFV	CHIP 50V 0.01U	4	
C6013		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6014		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C6015		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C6016,17		ECUM1H102KBV	CHIP 50V 1000P	2	
C6018-20		ECUX1E104ZFN	CHIP 25V 0.1U	3	
C6021		ECEA1EU470	E.CAPACITOR 25V 47U	1	
C6022		ECUM1H562ZFV	CHIP 50V 5600P	1	
C6024		ECUM1C474ZFM	CHIP 16V 0.47U	1	
C6025		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C6026		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6027		VCYD1C104MR1	S.CAPACITOR 16V 0.1U	1	
C6028,29		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C6033		ECUM1H391KBV	CHIP 50V 390P	1	
C8001		ECUM1H103ZFM	CHIP 50V 0.01U	1	
C8002		ECUM1H121JCM	CHIP 50V 120P	1	
C8004		ECUM1H121JCV	CHIP 50V 120P	1	
C8005		ECUM1H102KBV	CHIP 50V 1000P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C8006		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8009		ECUM1H472ZFV	CHIP 50V 4700P	1	
C8010		ECUM1H470JCV	CHIP 50V 47P	1	
C8011		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8012		ECUM1E103KBV	CHIP 25V 0.01U	1	
C8013		ECQB1H223JZ	P.CAPACITOR 50V 0.022U	1	
C8014		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8015		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8016		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8017-19		ECUX1H103ZFN	CHIP 50V 0.01U	3	
C8021		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8022-25		ECUX1H103ZFN	CHIP 50V 0.01U	4	
C8026		ECUM1C105ZFM	CHIP 16V 1U	1	
C8027		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C8028		ECUM1H030CCV	CHIP 50V 3P	1	
C8029		ECUM1H102KBV	CHIP 50V 1000P	1	
C8030		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C8031		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8032		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C8033		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8034		ECUM1H102KBV	CHIP 50V 1000P	1	
C8035		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8036		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C8037		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8039		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8040		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C8041		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8042		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8043		ECUX1H331KBN	CHIP 50V 330P	1	
C8044		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8045,46		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C8048		ECUM1H681JN	CHIP 50V 680P	1	
C8050		ECUM1H561KBV	CHIP 50V 560P	1	
C8051		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8054		ECUM1H221KBV	CHIP 50V 220P	1	
D1001		MA141K	DIODE	1	
D1003		MA159A	DIODE	1	
D1004		MA3075H	IC	1	
D2001		DA204U	DIODE	1	
D2002		MA143	DIODE	1	
D2003		DA204U	DIODE	1	
D2005		MA121	DIODE	1	
D2008		MA141K	DIODE	1	
D2009-11		DAN202U	DIODE	3	
D2012,13		MA141K	DIODE	2	
D2014		MA141A	DIODE	1	
D3002		DAN202U	DIODE	1	
D3003		MA141K	DIODE	1	
D3005		1SS283	DIODE	1	
D3006		DAN202U	DIODE	1	
D3009		DAN202U	DIODE	1	
D3011		MA141A	DIODE	1	
D4001		DAN202U	DIODE	1	
D4002		MA141K	DIODE	1	
D4004		MA141K	DIODE	1	
D4005		MA143	DIODE	1	
D4006		MA165	DIODE	1	
D5001		MA141K	DIODE	1	
D6001,02		MA141K	DIODE	2	
D6003		DAP202U	DIODE	1	
D6004		MA121	DIODE	1	
D6005		DAP202U	DIODE	1	
D6006-10		MA141K	DIODE	5	
D6012		DAN202U	DIODE	1	
D6013-17		DAP202U	DIODE	5	
D6018,19		DAN202U	DIODE	2	
D6023		DAP202U	DIODE	1	
D6025		DAN202U	DIODE	1	
D6026		MA141K	DIODE	1	
D6031		MA141A	DIODE	1	
D6032		MA141K	DIODE	1	
D6034		MA141K	DIODE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D6037		MA141A	DIODE	1	
D8001		MA141A	DIODE	1	
D8002		MA141K	DIODE	1	
DL3001		EFDCD124A13B	DELAY LINE	1	
FL3001		ELB4C005	FILTER	1	
FL3002		ELB4E014	FILTER	1	
FL3003,04		VLF0598	FILTER	2	
FL5001		VLF0625	FILTER	1	
FL5002		VLF0593	FILTER	1	
FL8001		ELB4B010	FILTER	1	
FL8002		ELB4B025	FILTER	1	
FL8003		VLF0626	FILTER	1	
IC1001		BA6149LS	IC	1	
IC1002		UN102	IC	1	
IC1003		UPC358G2	IC	1	
IC1004		UPC393G2	IC	1	
IC2001		MN67461VDJF	IC	1	
IC2002		AN3798NS	IC	1	
IC2005		BA6430S	IC	1	
IC2006		TA8402F	IC	1	
IC2007		MN1551VYJS	IC	1	
IC3001		AN3215S	IC	1	
IC3002		AN3321S	IC	1	
IC3201		VC2031FP	IC	1	
IC4001		UPC1513G	IC	1	
IC4002		UPC2300G	IC	1	
IC4003		M5201L	IC	1	
IC5001		AN3311S	IC	1	
IC6001		MN15361VNU	IC	1	
IC6002		S6700A	IC	1	
IC6003		NJM2903M	IC	1	
IC6004		M54543L	IC	1	
IC6005		UPD4094BG	IC	1	
IC8001		AN6367S	IC	1	
IC8002		MN6163AS	IC	1	
L1001		ELC07D003	COIL	1	
L1002		ELC08D038	COIL 180UH	1	
L1003		ELC06D005	COIL	1	
L1004		ELC07D003	COIL	1	
L1005		ELC08D027	COIL	1	
L1006		ELC07D003	COIL	1	
L1007		ELC08D025	COIL 600UH	1	
L1008		VLQ0129	COIL 300UH	1	
L1011,12		VLQEL05F221K	COIL 220UH	2	
L3001-05		VLQEL05F101K	COIL 100UH	5	
L3006		VLQ0187K8R2	COIL 8.2UH	1	
L3007		VLQ0187K120	COIL 12UH	1	
L3008		VLQEL04F680K	COIL 68UH	1	
L3009		VLQEL04F270K	COIL 12UH	1	
L3012		VLQEL04F4R7K	COIL 4.7UH	1	
L3013		VLQEL05F101K	COIL 100UH	1	
L3014		VLQ0187K5R6	COIL 5.6UH	1	
L3015		VLQ0187K120	COIL 12UH	1	
L3017		VLQEL04F820K	COIL 82UH	1	
L3018		VLQEL05F101K	COIL 100UH	1	
L3019		VLQEL04F220K	COIL 22UH	1	
L3020		VLQ0163K101	COIL 100UH	1	
L3501		VLQEL04F100K	COIL 10UH	1	
L3502		VLQEL04F120K	COIL 12UH	1	
L4001		VLQEL05F221K	COIL 220UH	1	
L4002		ELTMR822JB	TRANSFORMER	1	
L4003		ELTMR153KB	TRANSFORMER	1	
L5001		VLQEL04F390K	COIL 39UH	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L5002		VLQ0163K150	COIL 15UH	1	
L5004		VLQEL04F150K	COIL 15UH	1	
L5006		VLQEL04F220K	COIL 22UH	1	
L5007,08		VLQEL05F101K	COIL 100UH	2	
L5009		VLQEL05F681K	COIL 680UH	1	
L5010		VLQEL05F101K	COIL 100UH	1	
L5012		VLQEL04F101K	COIL 100UH	1	
L5013		VLQEL05F101K	COIL 100UH	1	
L6001		VLQEL05F101K	COIL 100UH	1	
L8001		VLQEL05F101K	COIL 100UH	1	
L8002		VLQEL04F470K	COIL 47UH	1	
L8004		VLQ0187K150	COIL 15UH	1	
L8008		VLQEL05F101K	COIL 100UH	1	
P1001		VJP1230T	CONNECTOR(MALE) 3P	1	
P1003		VJP1229T	CONNECTOR(MALE) 2P	1	
P2001		VJS2120	CONNECTOR	1	
P2002		VJP1923T	CONNECTOR	1	
P2003		VJP1595T	CONNECTOR(MALE) 2P	1	
P3001		VJP1595T	CONNECTOR(MALE) 2P	1	
P3002		VJP1598T	CONNECTOR(MALE) 5P	1	
P3003		VJS2119	CONNECTOR	1	
P3004		VJP1601T	CONNECTOR(MALE) 8P	1	
P3005		VJP1595T	CONNECTOR(MALE) 2P	1	
P3006		VJP1604T	CONNECTOR(MALE)	1	
P3201		VJR0366	CONNECTOR	1	
P4001		VJP1596T	CONNECTOR(MALE) 3P	1	
P4002		VJP1598T	CONNECTOR(MALE) 5P	1	
P4003		VJP1595T	CONNECTOR(MALE) 2P	1	
P4004		VJP1595R	CONNECTOR(MALE) 2P	1	
P4005		VJP1595T	CONNECTOR(MALE) 2P	1	
P5001		VJS2117	CONNECTOR	1	
P6001		VJP1595T	CONNECTOR(MALE) 2P	1	
P6002		VJP1605T	CONNECTOR(MALE) 12P	1	
P6003		VJS2107	CONNECTOR	1	
P6004		VJP1229T	CONNECTOR(MALE) 2P	1	
P6005		VJP1595T	CONNECTOR(MALE) 2P	1	
P6006		VJP1596T	CONNECTOR(MALE) 3P	1	
P6007		VJP1598T	CONNECTOR(MALE) 5P	1	
P6009		VJP1597T	CONNECTOR(MALE) 4P	1	
P6010		VJP1599T	CONNECTOR(MALE) 6P	1	
P6011		VJP2523	CONNECTOR (MALE)	1	
P6012		VJP1229T	CONNECTOR(MALE) 2P	1	
P6013		VJP1595R	CONNECTOR(MALE) 2P	1	
P8001		VJP1595R	CONNECTOR(MALE) 2P	1	
P8002		VJP1599T	CONNECTOR(MALE) 6P	1	
Q1001		2SB1218	TRANSISTOR	1	
Q1002		2SB956	TRANSISTOR	1	
Q1003		2SD1293M	TRANSISTOR	1	
Q1004,05		2SD1328	TRANSISTOR CHIP	2	
Q1007		2SD1328	TRANSISTOR CHIP	1	
Q2001-03		2SB956	TRANSISTOR	3	
Q3001		XN1401	TRANSISTOR-RESISTOR	1	
Q3006		2SC3938	TRANSISTOR	1	
Q3007		2SD1819	TRANSISTOR	1	
Q3008		XN4601	TRANSISTOR-RESISTOR	1	
Q3010		XN4601	TRANSISTOR-RESISTOR	1	
Q3018,19		XN4601	TRANSISTOR-RESISTOR	2	
Q3021		2SC3931	TRANSISTOR	1	
Q3024		2SB1218	TRANSISTOR	1	
Q3025,26		2SB970	TRANSISTOR CHIP	2	
Q3027		2SD1819	TRANSISTOR	1	
Q3030		2SB1218	TRANSISTOR	1	
Q3031		2SD1819	TRANSISTOR	1	
Q3032		XN1501	TRANSISTOR-RESISTOR	1	
Q3036		2SC3931	TRANSISTOR	1	
Q3037		2SB1218	TRANSISTOR	1	
Q3038		2SD1820	TRANSISTOR	1	
Q3040		XN4401	TRANSISTOR-RESISTOR	1	
Q3042,43		XN4501	TRANSISTOR-RESISTOR	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3044		2SD1328	TRANSISTOR CHIP	1	(R,S,T,X)
Q3045,46		2SC3931	TRANSISTOR	2	
Q3501		2SA812	TRANSISTOR	1	
Q3502		2SA1175	TRANSISTOR	1	
Q3503		2SD1819	TRANSISTOR	1	
Q4001		2SD1820	TRANSISTOR	1	
Q4002		2SD1328	TRANSISTOR CHIP	1	
Q4003		2SD1819	TRANSISTOR	1	
Q4005		2SB1219	TRANSISTOR	1	
Q4007		2SD1823	TRANSISTOR	1	
Q4009		2SD1819	TRANSISTOR	1	
Q4011		2SD1328	TRANSISTOR CHIP	1	
Q4012		2SB1218	TRANSISTOR	1	
Q4013		2SD1328	TRANSISTOR CHIP	1	
Q5001		XN1401	TRANSISTOR-RESISTOR	1	
Q5002,03		XN1501	TRANSISTOR-RESISTOR	2	
Q5007		XN1401	TRANSISTOR-RESISTOR	1	
Q5008,09		XN1501	TRANSISTOR-RESISTOR	2	
Q5013		2SC3931	TRANSISTOR	1	
Q5014		2SD1819	TRANSISTOR	1	
Q5015		2SC3931	TRANSISTOR	1	
Q5017,18		2SD1819	TRANSISTOR	2	
Q6001		2SB1218	TRANSISTOR	1	
Q6002,03		2SB779	TRANSISTOR	2	
Q6004		2SD1820	TRANSISTOR	1	
Q6005		2SD1819	TRANSISTOR	1	
Q8001		2SC3931	TRANSISTOR	1	
Q8002,03		2SD1819	TRANSISTOR	2	
Q8004		2SB1218	TRANSISTOR	1	
Q8005,06		2SC3931	TRANSISTOR	2	
Q8007		2SD1819	TRANSISTOR	1	
Q8008		2SB1218	TRANSISTOR	1	
Q8009		2SC3931	TRANSISTOR	1	
Q8010		2SD1819	TRANSISTOR	1	
Q8011		XN1401	TRANSISTOR-RESISTOR	1	
Q8012		2SB1218	TRANSISTOR	1	
Q8013		2SC3931	TRANSISTOR	1	
Q8014		2SD1819	TRANSISTOR	1	
QR1001		GA1L4M	TRANSISTOR-RESISTOR	1	
QR1002		FA1L4M	TRANSISTOR-RESISTOR	1	
QR2004		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2005		GN1F4Z	TRANSISTOR-RESISTOR	1	
QR3001		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3002		GN1A4M	TRANSISTOR-RESISTOR	1	
QR3006		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3007		XN1212	TRANSISTOR-RESISTOR	1	
QR3009		XN1212	TRANSISTOR-RESISTOR	1	
QR3011		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3013		XN1215	TRANSISTOR-RESISTOR	1	
QR3014-16		GA1F4M	TRANSISTOR-RESISTOR	3	
QR3018		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3019		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3020		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3021,22		GA1L4M	TRANSISTOR-RESISTOR	2	
QR3027		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR3028		XN1213	TRANSISTOR-RESISTOR	1	
QR3029,30		GA1L4M	TRANSISTOR-RESISTOR	2	
QR3032		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3034,35		GA1L4M	TRANSISTOR-RESISTOR	2	
QR3037		UN5117	TRANSISTOR	1	
QR4002		GA1F4M	TRANSISTOR-RESISTOR	1	
QR4004		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4008		UN1212	TRANSISTOR-RESISTOR	1	
QR5001		FMG2UX	TRANSISTOR-RESISTOR	1	
QR5002		XN1112	TRANSISTOR-RESISTOR	1	
QR5003		FMG2UX	TRANSISTOR-RESISTOR	1	
QR5004		XN1112	TRANSISTOR-RESISTOR	1	
QR5005		XN1212	TRANSISTOR-RESISTOR	1	
QR5007		GA1F4M	TRANSISTOR-RESISTOR	1	
QR5008		GA1L4M	TRANSISTOR-RESISTOR	1	
QR5010		XN1212	TRANSISTOR-RESISTOR	1	
QR6001		GA1L4M	TRANSISTOR-RESISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
QR6003		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6004		XN1213	TRANSISTOR-RESISTOR	1	
QR6005		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6006		GN1A4Z	TRANSISTOR-RESISTOR	1	
QR6009,10		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6011		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6012		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6013-15		GN1A4Z	TRANSISTOR-RESISTOR	3	
QR6016		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6017,18		GN1A4Z	TRANSISTOR-RESISTOR	2	
QR6019		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6023		GN1A4Z	TRANSISTOR-RESISTOR	1	
QR6024,25		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6026		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6027,28		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6029		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6030,31		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6033		GA1L4L	TRANSISTOR-RESISTOR	1	
QR6035		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6036		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6037		XN4316	COMBI.PARTS	1	
QR8001		GN1F4M	TRANSISTOR-RESISTOR	1	
QR8003		GA1F4M	TRANSISTOR-RESISTOR	1	
QR8004		XN4215	TRANSISTOR-RESISTOR	1	
QR8005		GN1F4M	TRANSISTOR-RESISTOR	1	
QR8006		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR8007		GA1L4M	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R1001		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R1002		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1004		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1006		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1007		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1008		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R1009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R1012,13		ERJ8GCYJ122	M.RESISTOR CH 1/8W 1.2K	2	
R1014,15		ERJ8GCYJ152	M.RESISTOR CH 1/8W 1.5K	2	
R1018		ERJ8GCYJ122	M.RESISTOR CH 1/8W 1.2K	1	
R1019		ERJ8GCYJ821	CHIP 1/8W 820	1	
R1020,21		ERJ3GEYJ183	CHIP 1/20W 18K	2	
R1022,23		ERJ3GEYJ681	CHIP 1/20W 680	2	
R1024		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R1025		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R1026-31		ERJ3GEYJ391	CHIP 1/20W 390	6	
R1032		ERJ3GEYJ821	CHIP 1/20W 820	1	
R1033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1035		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R1036		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1037		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1038		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1039		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R1041		ERJ3GEYJ101	CHIP 1/20W 100	1	
R1042		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R1043		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R1044		ERJ8GCYJ560	CHIP 1/8W 56	1	
R1045		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R1046		ERJ3GEYJ684	CHIP 1/20W 680K	1	
R1047		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1048		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1049		VSF0015A10	IC PROTECTOR	1	
R1050		VSF0015A08	IC PROTECTOR	1	
R1051		VSF0059	FUSE	1	
R1052		ERJ3GEYJ681	CHIP 1/20W 680	1	
R2001,02		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R2003		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R2004		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R2005		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R2006		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R2007		ERJ3GEYJ154	CHIP 1/20W 150K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2010		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R2011		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R2012		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R2013		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2014		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2015		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R2016		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2017		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2018		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2019		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2020		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R2021		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2022		ERJ3GEYJ271	CHIP 1/20W 270	1	
R2025		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2028		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2030		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R2031		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R2032		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R2034		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R2036,37		ERJ3GEYJ330	CHIP 1/20W 33	2	
R2038		ERDS2TJR68	C.RESISTOR 1/4W 0.68	1	
R2039		ERJ3GEYJ330	CHIP 1/20W 33	1	
R2040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2041		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R2042		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R2043		ERJ3GEYJ221	CHIP 1/20W 220	1	
R2044		ERJ3GEYJ820	CHIP 1/20W 82	1	
R2045		ERJ8GCYK2R2	M.RESISTOR CH 1/8W 2.2	1	
R2046,47		ERJ8GCYK1R8	M.RESISTOR CH 1/8W 1.8	2	
R2048		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R2049-51		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R2052		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2053,54		ERJ3GEYJ682	CHIP 1/20W 6.8K	2	
R2060		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R2061		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2062		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2064		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2066		ERJ3GEYJ221	CHIP 1/20W 220	1	
R2067-69		ERJ6GMYJ150	M.RESISTOR CH1/10W 15	3	
R2070-72		ERJ3GEYJ104	CHIP 1/20W 100K	3	
R2077		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R2079		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R2080		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R2084-86		ERJ3GEYJ104	CHIP 1/20W 100K	3	
R3001		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3002		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3003		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R3004		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3009		ERJ3GEYJ680	CHIP 1/20W 68	1	
R3010		ERJ3GEYJ220	CHIP 1/20W 22	1	
R3011,12		ERJ3GEYJ821	CHIP 1/20W 820	2	
R3014		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3015		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R3016		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3017		ERJ3GEYJ560	CHIP 1/20W 56	1	
R3018		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3020,21		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3022,23		ERJ3GEYJ270	CHIP 1/20W 27	2	
R3024		ERJ3GEYJ680	CHIP 1/20W 68	1	
R3025		ERJ3GEYJ220	CHIP 1/20W 22	1	
R3026,27		ERJ3GEYJ821	CHIP 1/20W 820	2	
R3028		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3029		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3030		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3031		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3032		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3034,35		ERJ3GEYJ683	CHIP 1/20W 68K	2	
R3036		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3039,40		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3041		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3042		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3043,44		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3045		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R3046,47		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3048		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R3049		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R3050		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3051		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3052		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3053		ERJ3GEYJ821	CHIP 1/20W 820	1	
R3054		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3055		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R3056		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3057		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3058		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3059		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3060		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3061		ERJ3GEYJ331	CHIP 1/20W 330	1	
R3062		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3063,64		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3065		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3066,67		ERJ3GEYJ182	CHIP 1/20W 1.8K	2	
R3068		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3069		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R3070		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3076		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3077		ERJ3GEYJ561	CHIP 1/20W 560	1	
R3078,79		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R3080		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3082		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3083		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3085		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3087		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3089		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3090		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3091		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3093,94		ERJ3GEYJ182	CHIP 1/20W 1.8K	2	
R3095		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3097		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3098,99		ERJ3GEYJ822	CHIP 1/20W 8.2K	2	
R3100,01		ERJ3GEYJ153	CHIP 1/20W 15K	2	
R3103		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R3110		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R3111		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3115,16		ERJ3GEYJ154	CHIP 1/20W 150K	2	
R3117		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3118		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3120		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3121		ERJ3GEYJ151	CHIP 1/20W 150	1	
R3122		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3123		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R3124		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3125		ERJ3GEYJ121	CHIP 1/20W 120	1	
R3126,27		ERJ3GEYJ333	CHIP 1/20W 33K	2	
R3128,29		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3139		ERJ3GEYJ561	CHIP 1/20W 560	1	
R3140		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3141		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R3142		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3143		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R3144		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3145,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3147		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3149		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R3150		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3152		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R3153		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3154		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R3155		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3158		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R3159,60		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3161		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3162		ERJ3GEYJ561	CHIP 1/20W 56	1	
R3163		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3164		ERJ3GEYJ102	CHIP 1/20W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3167,68		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R3169		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3170		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3201		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3202		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3203		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3204		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3205		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3206-08		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	3	
R3209		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	
R3210		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3211		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3212		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3213		ERJ3GEYG152	M.RESISTOR CH1/20W 1.5K	1	
R3501		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R3502		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3503		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3504		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3505		ERJ6GMYJ4R7	CHIP 1/10W 4.7	1	
R3506		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R4001		ERJ3GEYJ100	CHIP 1/20W 10	1	
R4002		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4004		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R4005		ERJ3GEYJ151	CHIP 1/20W 150	1	
R4006		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R4007		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R4009		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R4010		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4011		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4012		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4013		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R4014		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R4016		ERJ3GEYJ181	CHIP 1/20W 180	1	
R4018		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R4019		ERJ3GEYJ471	CHIP 1/20W 470	1	
R4020,21		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R4025		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4026		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R4027		ERJ3GEYJ561	CHIP 1/20W 560	1	
R4028		ERJ3GEYJ271	CHIP 1/20W 270	1	
R4029		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R4030		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4031,32		ERJ3GEYJ124	CHIP 1/20W 120K	2	
R4033,34		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R4035		ERJ3GEYJ101	CHIP 1/20W 100	1	
R4036		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R4037		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4038		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4039		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4040		ERJ3GEYJ681	CHIP 1/20W 680	1	
R4041		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4042		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R4044		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R4045		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R4046		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R4047		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R4048		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R4049		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4050,51		ERJ3GEYJ122	CHIP 1/20W 1.2K	2	
R4052,53		ERJ3GEYJ272	CHIP 1/20W 2.7K	2	
R4054		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R4055		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R4056		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R4057		ERDS2TJ223	C.RESISTOR 1/4W 2.2K	1	
R5001		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5002		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5003		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5004		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5006,07		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5008		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5009		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5010		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5011		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5012		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5013,14		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5015		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5016		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5017		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5018		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5019		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5020,21		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5022		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5023		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5024		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5025		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5026		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5027,28		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5030-33		ERJ3GEYJ152	CHIP 1/20W 1.5K	4	
R5034		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5035		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5036,37		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R5038		ERJ3GEYJ561	CHIP 1/20W 560	1	
R5039		ERJ3GEYJ101	CHIP 1/20W 100	1	
R5040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5041		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5042		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5043		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5044		ERJ3GEYJ121	CHIP 1/20W 120	1	
R5045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5047		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5049		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5050		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R5052		ERJ3GEYJ821	CHIP 1/20W 820	1	
R5053		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5054		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R5055		ERJ3GEYJ391	CHIP 1/20W 390	1	
R5056-59		ERJ3GEYJ471	CHIP 1/20W 470	4	
R5063		ERJ3GEYJ100	CHIP 1/20W 10	1	
R6001		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6002		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6003		ERJ3GEY0R00	CHIP 1/20W 0	1	
R6004		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R6005		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R6006,07		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6008,09		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6010		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6011		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6012		ERJ3GEYJ391	CHIP 1/20W 390	1	
R6013		ERJ3GEY0R00	CHIP 1/20W 0	1	
R6014,15		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6017		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6018,19		ERJ6GMYJ391	CHIP 1/10W 390	2	
R6020		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6021-23		ERJ6GMYJ391	CHIP 1/10W 390	3	
R6024		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6025		ERJ6GMYJ391	CHIP 1/10W 390	1	
R6026		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6027		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6028		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6029		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6030		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R6031		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6032,33		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R6034		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6035		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R6036		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R6037		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6038		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R6039		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R6040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6041		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6042		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6043		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6044		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6046		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6047		ERJ3GEYJ102	CHIP 1/20W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6048		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6049		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6050		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6051		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6052		ERJ6GMYJ270	CHIP 1/10W 27	1	
R6053		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R6054,55		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R6056		ERJ8GCYJ181	CHIP 1/10W 180	1	
R6057		ERJ8GCYJ221	M.RESISTOR CH 1/8W 220	1	
R6058		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6059,60		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R6061		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6062		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R6063		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6064		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R6065-67		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R6068		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R6069		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R6070		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6071		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R6072		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6073		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6074		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6076		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R6077		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6079		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6080		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6082		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6084,85		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6086		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6087-91		ERJ3GEYJ102	CHIP 1/20W 1K	5	
R6092		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R8001		ERJ3GEY0R00	CHIP 1/20W 0	1	
R8002		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8003		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R8004		ERJ3GEYJ271	CHIP 1/20W 270	1	
R8005		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8006		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8007		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8009		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8010		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8011-13		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R8014		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R8015		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R8016,17		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8018		ERJ3GEYJ390	CHIP 1/20W 39	1	
R8019		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8020		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8021		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8022		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R8023		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8024		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8025,26		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8027		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8028		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R8029		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8030		ERJ8GCYJ470	CHIP 1/8W 47	1	
R8031		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8032		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R8033		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R8034		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8035		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8036		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R8037		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8038		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8041		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8042		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R8043		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8045		ERJ3GEY0R00	CHIP 1/20W 0	1	
R8046		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R8047		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8048		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R8049		ERJ3GEYJ560	CHIP 1/20W 56	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R8050		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8051		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8052		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8054		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R8055,56		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8057		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8058		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8059		ERJ3GEYJ221	CHIP 1/20W 220	1	
R8060		ERJ3GEYJ681	CHIP 1/20W 680	1	
R8061,62		ERJ3GEYJ471	CHIP 1/20W 470	2	
R8063		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8064		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8065		ERJ6GMYJ123	M.RESISTOR CH1/10W 12K	1	
R8066,67		ERJ3GEYJ563	CHIP 1/20W 56K	2	
S6001		ESD142127	SWITCH	1	
T1001		ELL10R010	TRANSFORMER	1	
T4001		EIQ7QE007Q	FILTER	1	
VR1001		EVM7NSW00B53	V.RESISTOR 5K	1	
VR1002		EVM7NSX00B53	V.RESISTOR 5K	1	
VR1003		EVM7NSW00B53	V.RESISTOR 5K	1	
VR2001		EVM7NSW00B15	V.RESISTOR 100K	1	
VR3001-03		EVM7NSX00B54	V.RESISTOR 50K	3	
VR3004,05		EVM7NSX00B14	V.RESISTOR 10K	2	
VR3006		EVM7NSX00B23	V.RESISTOR 2K	1	
VR3007		EVM7NSX00B54	V.RESISTOR 50K	1	
VR3008		EVM7NSX00B24	V.RESISTOR 20K	1	
VR3009		EVM7NSX00B14	V.RESISTOR 10K	1	
VR3010		EVM7NSX00B54	V.RESISTOR 50K	1	
VR3012		EVM7NSX00B23	V.RESISTOR 2K	1	
VR4001		EVM7NSX00B23	V.RESISTOR 2K	1	
VR5001		EVM7NSX00B13	V.RESISTOR 1K	1	
VR6001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR6002		EVM7NSX00B14	V.RESISTOR 10K	1	
VR8001		EVM7NSX00B13	V.RESISTOR 1K	1	
VR8002		EVM7NSX00B54	V.RESISTOR 50K	1	
X1001		VSX0136	CRYSTAL OSCILLATOR	1	
X2001		VSX0154	CRYSTAL OSCILLATOR	1	
X6001		VSX0140	CRYSTAL OSCILLATOR	1	
X6002		VSX0249	CRYSTAL OSCILLATOR	1	
X8001		VSX0132	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2181	HEAD AMP SHIELD CASE(MAIN)	1	
		VSC2180	HEAD AMP SHIELD CASE(TOP)	1	
		VSC1932	HEAD AMP SHIELD CASE	1	
			(BOTTOM)		
		VSC1358	POWER SHIELD CASE(BOTTOM)	1	
		VMZ0651	POWER SHIELD BARRIER	1	
	■	VEP03583A	SUB VIDEO C.B.A.		
			CAPACITORS		
C3801-04		ECUX1H103ZFN	CHIP 50V 0.01U	4	
C3805		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3806		ECUX1H680JCN	CHIP 50V 68P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3807,08		ECUX1H103ZFN	CHIP 50V 0.01U	2	
C3809		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3810-13		ECUX1H103ZFN	CHIP 50V 0.01U	4	
C3836,37		ECUX1H103ZFN	CHIP 50V 0.01U	2	
C3839		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3840		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3841		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C3851		ECUX1H820JCN	CHIP 50V 82P	1	
IC3801		BU3781F	IC	1	
IC3802		M52055	IC	1	
L3801		VLQEL05F101K	COIL 100UH	1	
L3802		VLQEL05F470K	COIL 47UH	1	
L3803		VLQEL05F101K	COIL 100UH	1	
L3809		VLQEL05F101K	COIL 100UH	1	
L3812		VLQEL05F180K	COIL 18UH	1	
P3802		VJP1599T	CONNECTOR(MALE) 6P	1	
P3803		VJP1604T	CONNECTOR(MALE)	1	
Q3801,02		2SD601	TRANSISTOR CHIP	2	(R,S)
Q3804		2SC2404	TRANSISTOR	1	
Q3810		XN4501	TRANSISTOR-RESISTOR	1	
Q3816		XN1401	TRANSISTOR-RESISTOR	1	
Q3817		2SD601	TRANSISTOR CHIP	1	(R,S)
			RESISTORS		
R3801		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R3802		ERJ6GMYJ271	M.RESISTOR CH1/10W 270	1	
R3803		ERJ6GMYJ101	CHIP 1/10W 100	1	
R3804,05		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	2	
R3806		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R3807		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R3808		ERJ6GMYJ560	M.RESISTOR CH1/10W 56	1	
R3809,10		ERJ6GMYJ102	CHIP 1/10W 1K	2	
R3811		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3812		ERJ6GMYJ332	CHIP 1/10W 3.3K	1	
R3846		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3847		ERJ6GMYJ271	M.RESISTOR CH1/10W 270	1	
R3848		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R3849		ERJ6GMYJ273	M.RESISTOR CH1/10W 27K	1	
R3851		ERJ6GMYJ222	CHIP 1/10W 2.2K	1	
R3852		ERJ6GMYJ224	CHIP 1/10W 220K	1	
R3853		ERJ6GMYJ101	CHIP 1/10W 100	1	
R3854		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R3855-58		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	4	
R3866		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
			MISCELLANEOUS		
		VSC2182	SUB HEAD AMP SHIELD CASE(1)	1	
		VSC2184	SUB HEAD AMP SHIELD CASE(2)	1	
		VMX1464	SHIELD UNIT	1	
	■	VEP03597A	SUB EMPHASIS C.B.A.		
			CAPACITORS		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3201		ECUM1H820JCV	CHIP 50V 82P	1	
C3202		ECUM1H271KBV	CHIP 50V 270P	1	
C3203		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3204		ECUM1H181JV	CHIP 50V 180P	1	
C3205		ECUM1H271KBV	CHIP 50V 270P	1	
C3206		ECUM1H820JCV	CHIP 50V 82P	1	
C3207		ECUM1H271KBV	CHIP 50V 270P	1	
C3208		ECUM1H181JV	CHIP 50V 180P	1	
C3209		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3210		ECUM1H103ZFV	CHIP 50V 0.01U	1	
IC3201		AN3292S	IC	1	
P3201		VJR0366	CONNECTOR	1	
			RESISTORS		
R3201		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3202		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3203		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3204		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3205		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3206-08		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	3	
R3209		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	
R3210		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3211		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3212		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3213		ERJ3GEYG152	M.RESISTOR CH1/20W 1.5K	1	
	■	VEP06452A	OPERATION C.B.A.		
D6501-07		BR3668S	DIODE	7	
D6508-19		MA165	DIODE	12	
P6501		VJP1606T	CONNECTOR(MALE)	1	
P6502		VJP2107	CONNECTOR	1	
S6501		ESD100121	SWITCH	1	
S6502-13		EVQQSB04B	SWITCH	12	
S6514		VST0098	SWITCH	1	
S6515,16		EVQQSB04B	SWITCH	2	
	■	VEK3463	S-VHS CONNECTOR C.B.A.		(NLA)
			MISCELLANEOUS		
		VJJ0162	S-VHS 4P CONNECTOR	1	
		VEE3754	VIDEO 4P CONNECTOR	1	
	■	VEK3464	START/STOP SW C.B.A.		(NLA)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			MISCELLANEOUS		
		EVQQSU04W	SWITCH	1	
	■	VEK3462	ZOOM & SUB START/STOP		(NLA)
			SW C.B.A.		
			MISCELLANEOUS		
		EVQQV604W	SWITCH	1	
		VMG0358	RUBBER SW	2	
		VJP1607T	CONNECTOR(MALE) 3P	1	
	■	VEK3465	E.V.F CONNECTOR C.B.A.		(NLA)
			MISCELLANEOUS		
		VJJ0163	E.V.F JACK	1	
	■	VJP1613T	CONNECTOR(MALE) 9P		
	■	VEP00H73B	F.E HEAD C.B.A		
			CAPACITORS		
C1501		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1502		ECKF1H472ZF	C.CAPACITOR 50V 4700P	1	
C1503		VCYD1C103MR1	S.CAPACITOR 16V 0.01U	1	
C1504		ECQV1H333JZ	P.CAPACITOR 50V 0.033U	1	
L1501		VLQEL05F221K	COIL 220UH	1	
Q1504		2SC2603AE2F	TRANSISTOR	1	
			RESISTORS		
R1503		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
T1501		EIQ7QT007Q	TRANSFORMER	1	
	■	VXA3076	SENSOR LED C.B.A.		(NLA)
			MISCELLANEOUS		
		VMD0465	LED HOLDER	1	
		LN59NV	LED	1	
	■	VEK3415	SUPPLY PHOTO C.B.A.		(NLA)
			MISCELLANEOUS		
		PN158NVNC	PHOTO TR.	1	
		VMD0607	PHOTO HOLDER	1	
		VSH0026	LEAF SWITCH	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEK3414	TAKE-UP PHOTO C.B.A.		(NLA)
			MISCELLANEOUS		
		PN158NV	PHOTO TR.	1	
		VMD0606	PHOTO HOLDER	1	
	■	VEK3621	14P REMOTE CONTROL C.B.A.		
			MISELLANEOUS		
		VJJ0125	REMOCON JACK	1	
		VEE4074	14P MULTI CONNECTOR	1	
	■	VES0413	MECHANISM CONNECTION C.B.A.		(NLA)
			MISCELLANEOUS		
		VMX1280	SENSOR SPACER	1	
		ON2170	TRANSISTOR	1	
		VSS0193	MODE SWITCH	1	
		VJP1235T	CONNECTOR(MALE) 8P	1	
		VJP1229R	CONNECTOR(MALE) 2P	1	